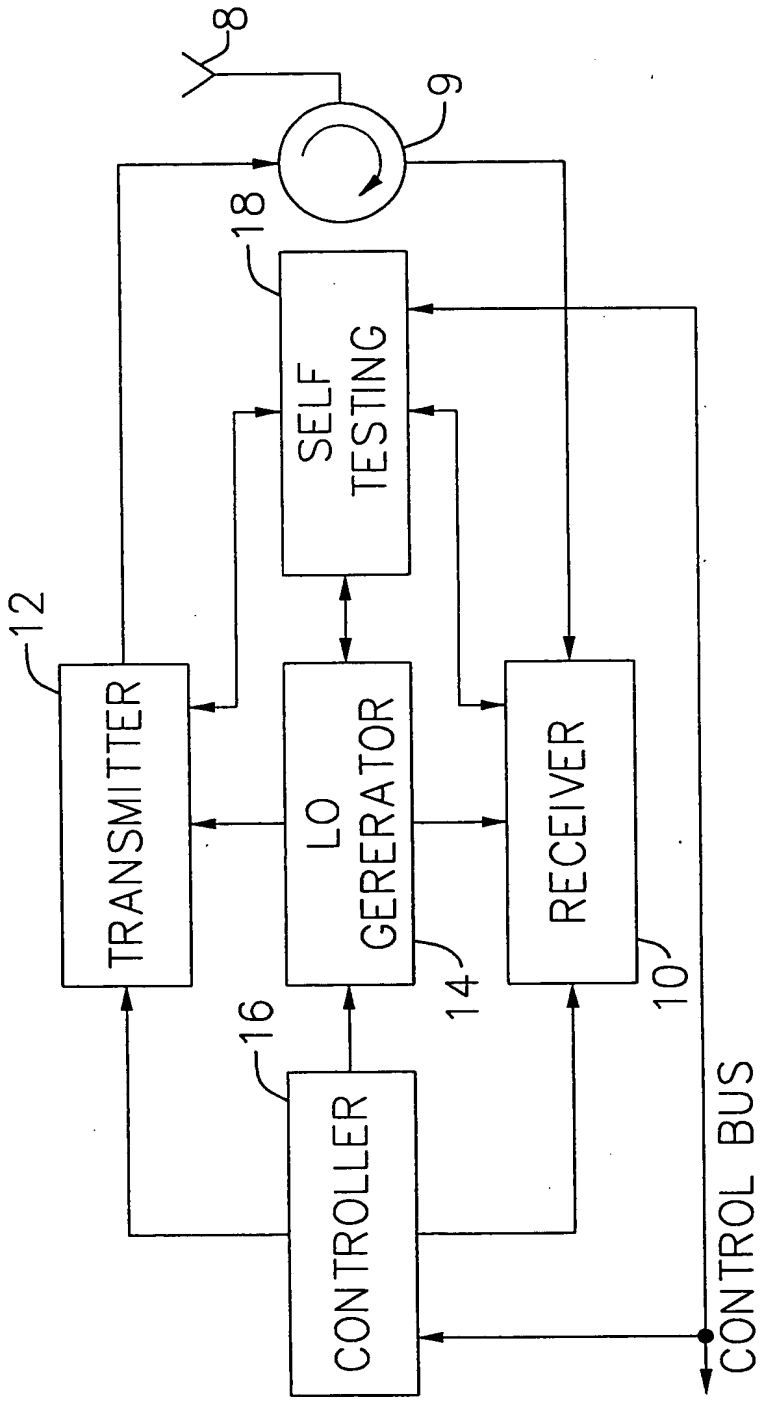


FIG. 1

FIG.2

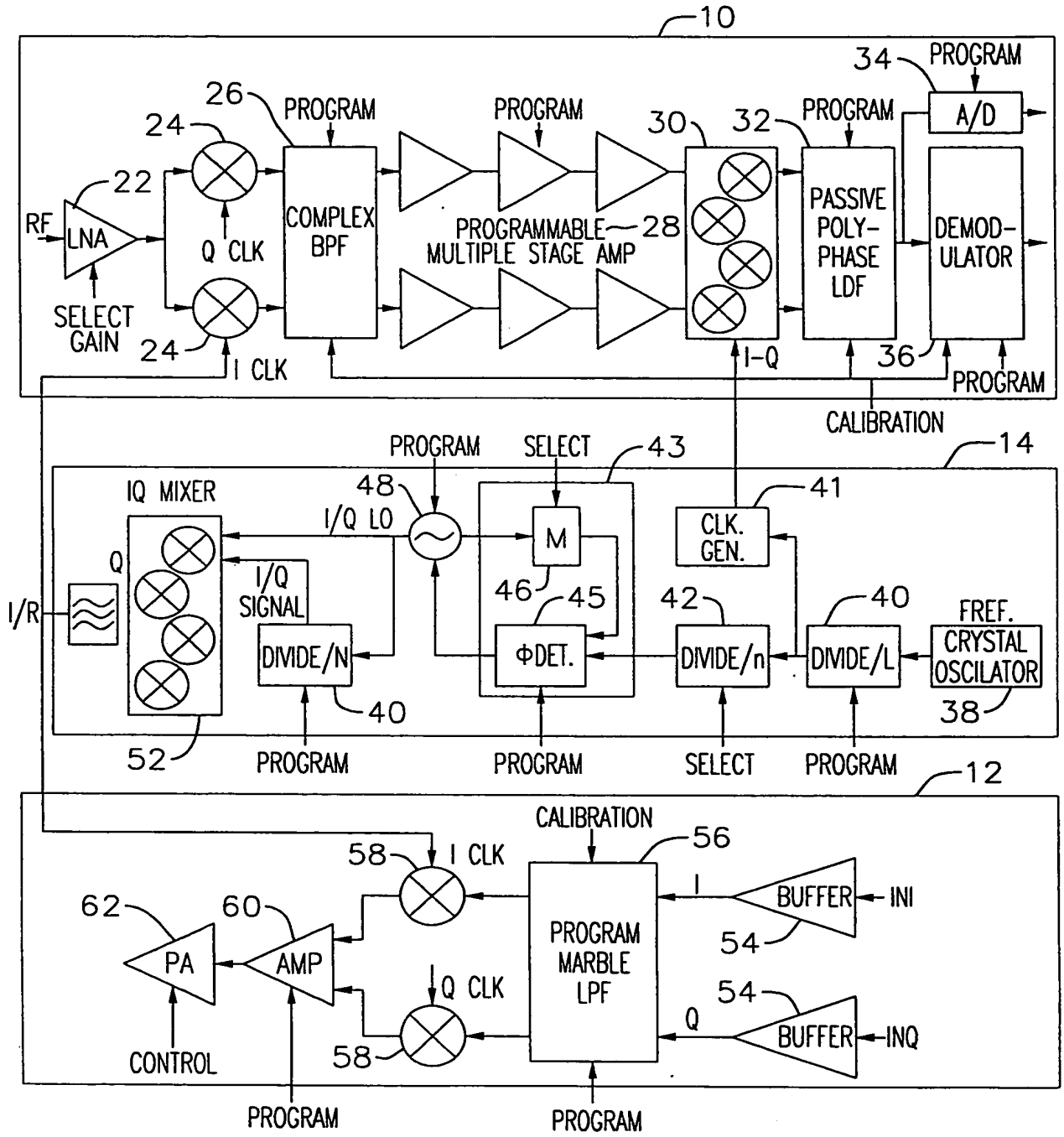


FIG.3

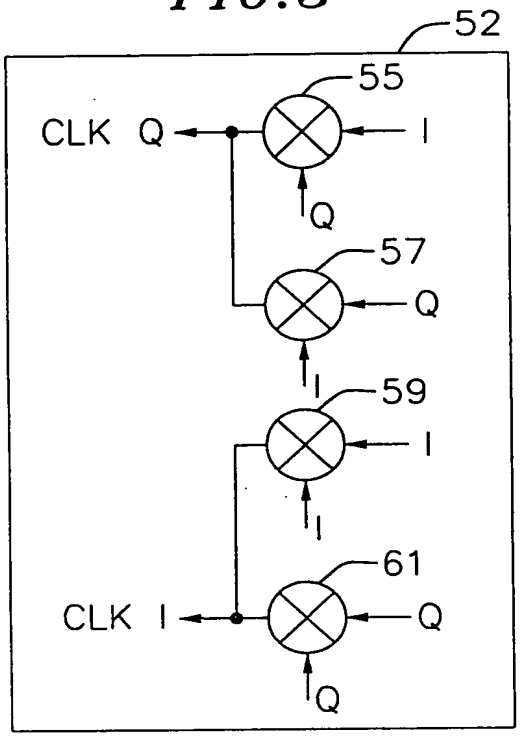


FIG.4

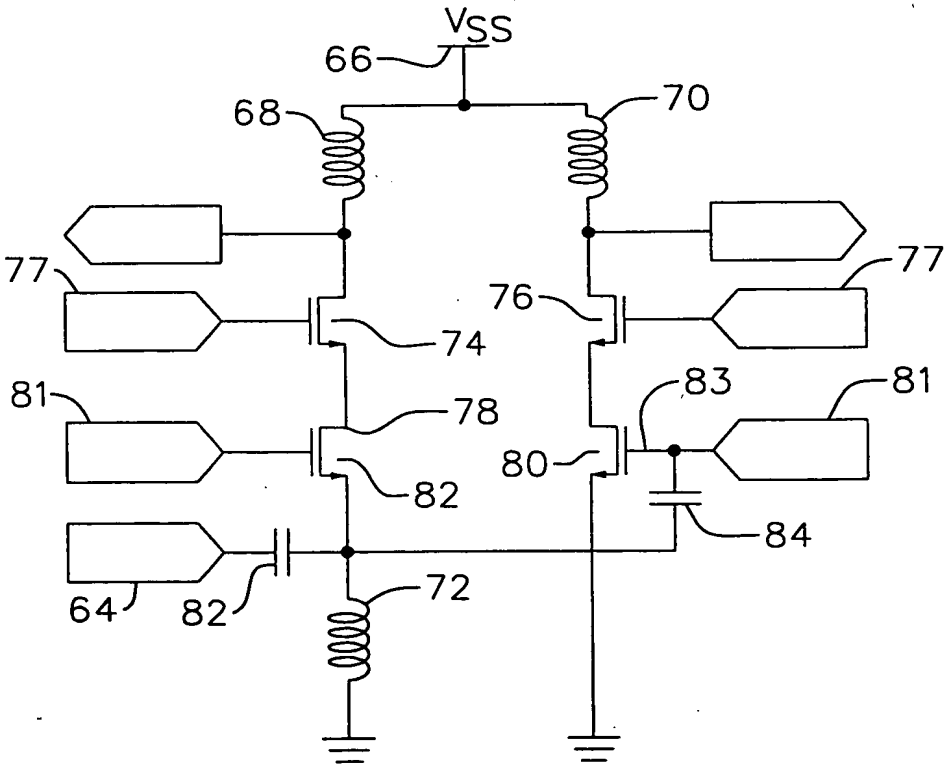


FIG. 4(a)

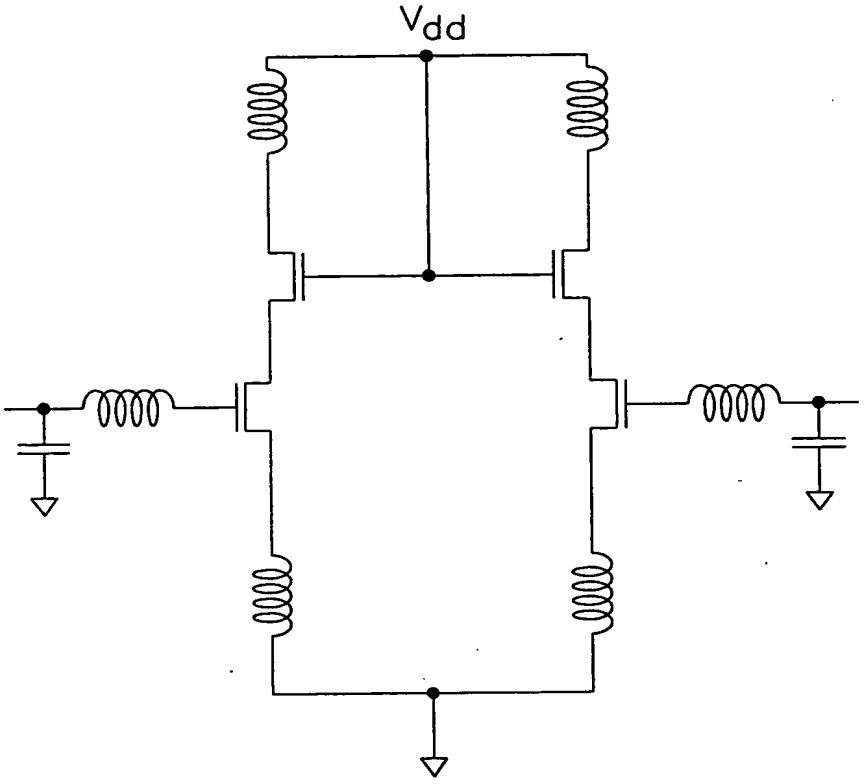


FIG.5

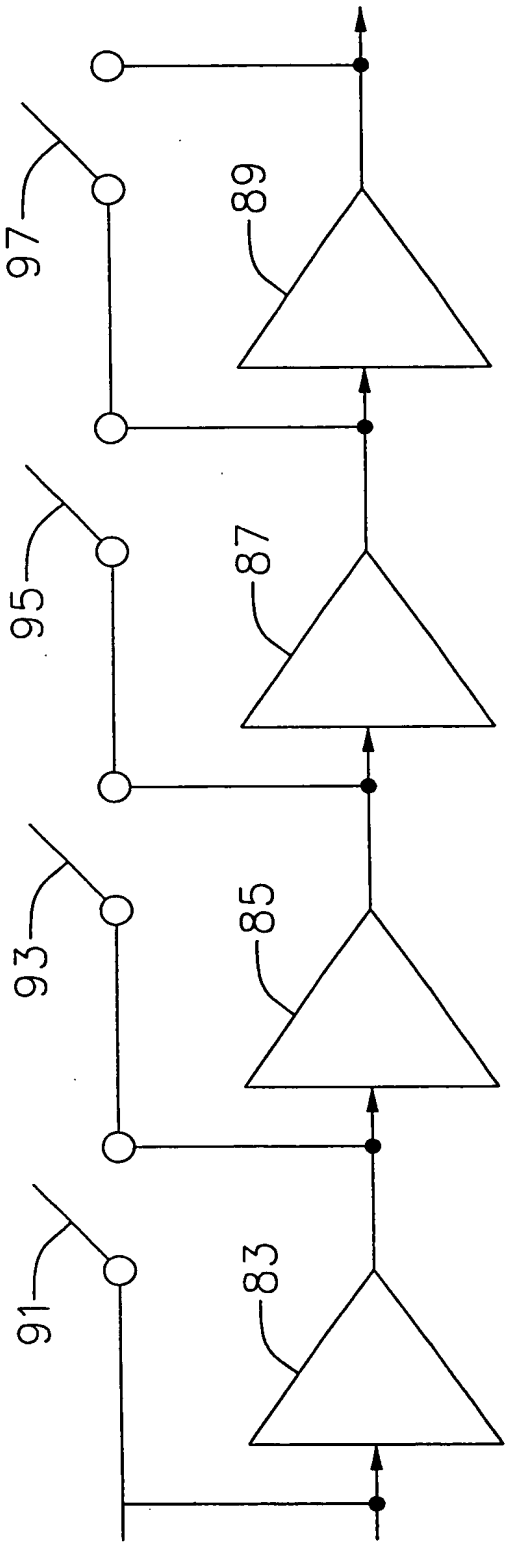


FIG. 6

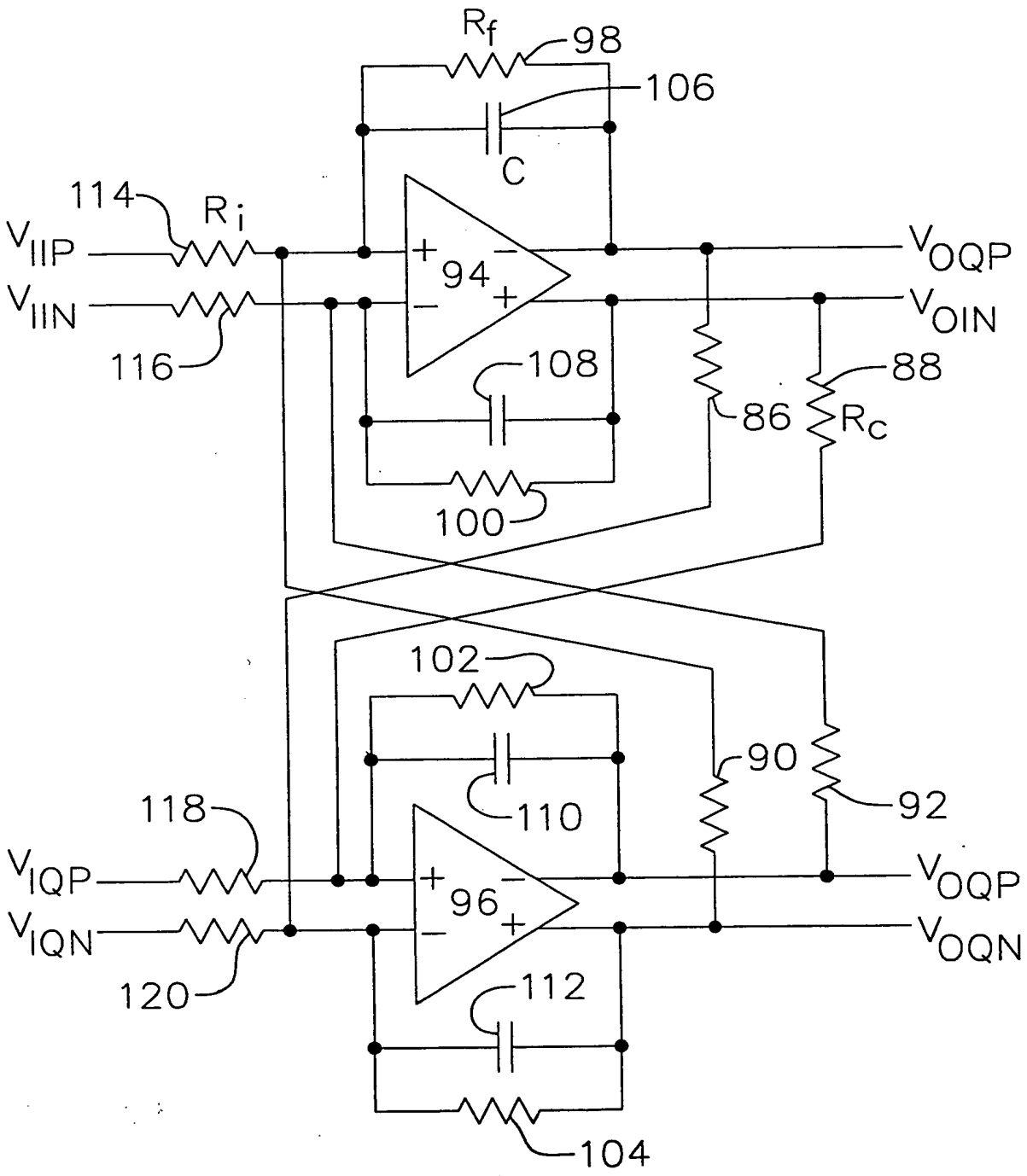


FIG. 7

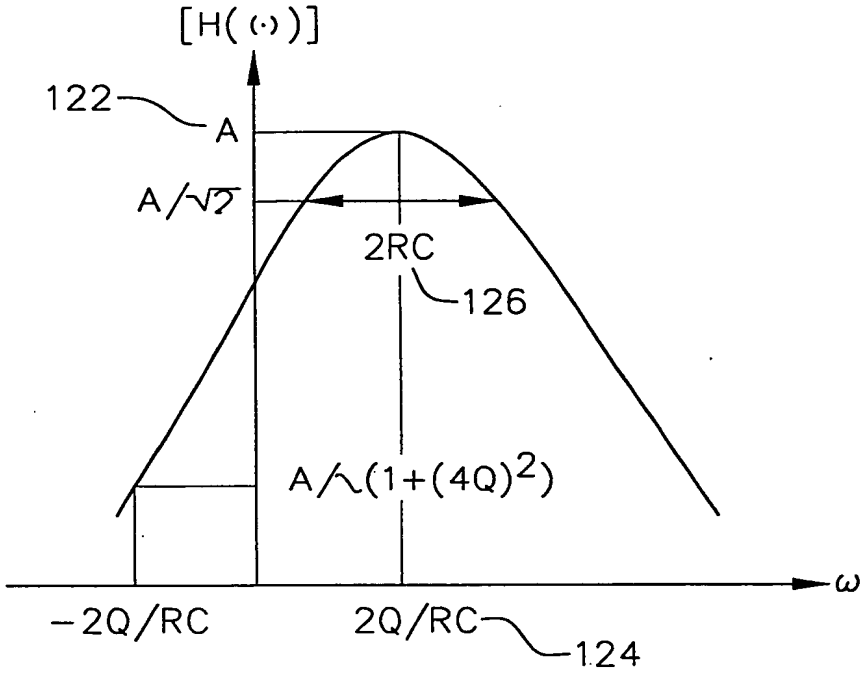


FIG. 8

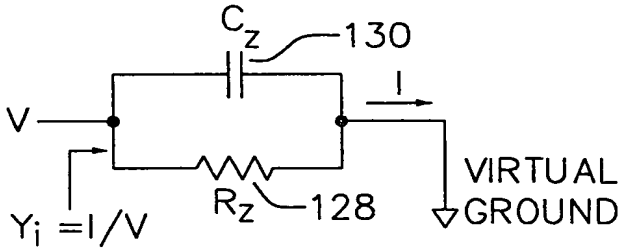


FIG. 9

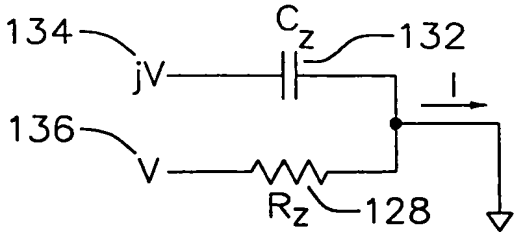
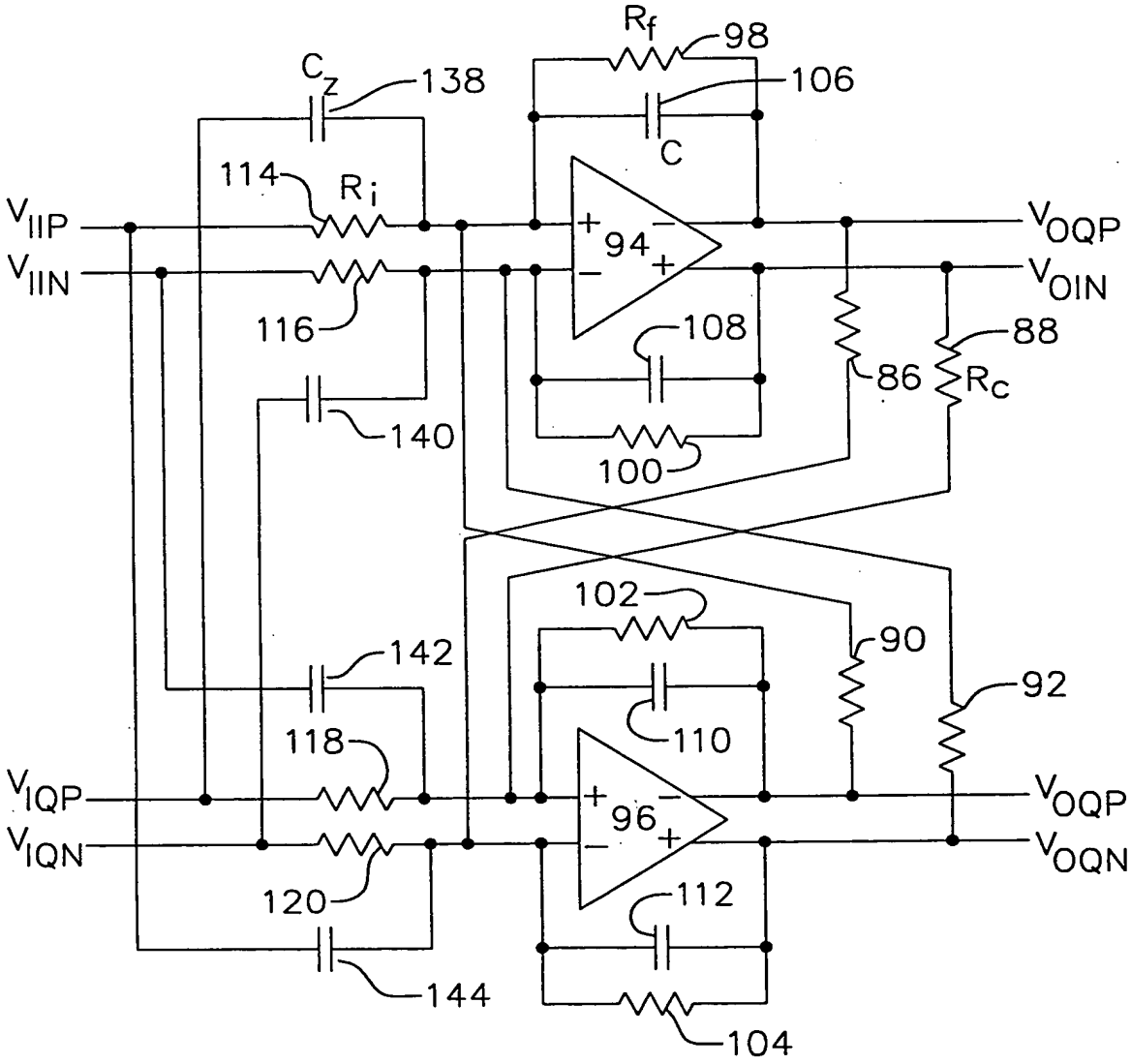


FIG. 10



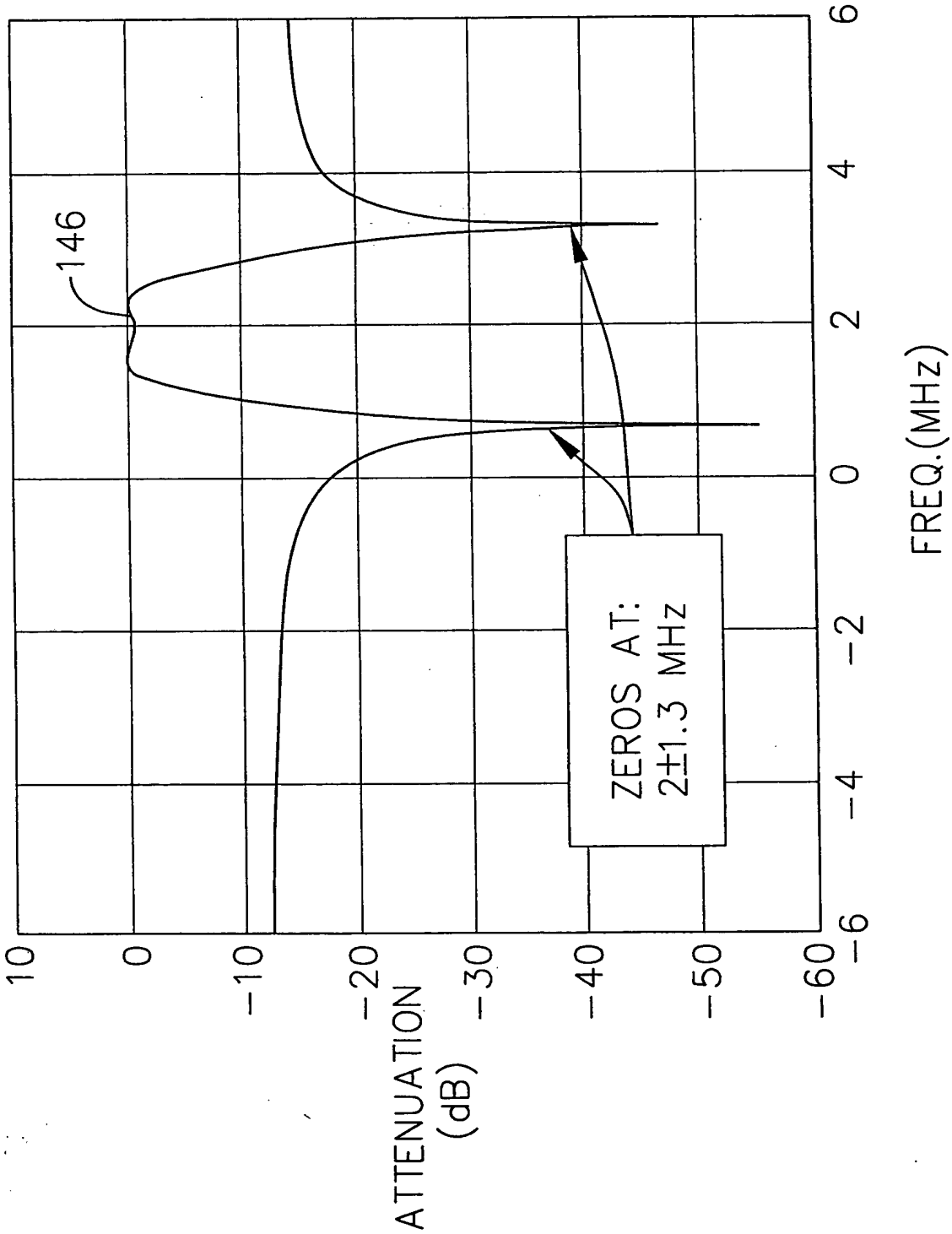


FIG. 11

FIG. 12a

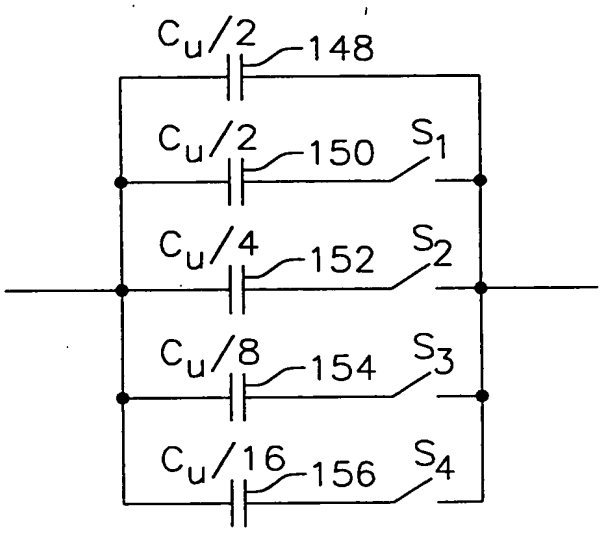
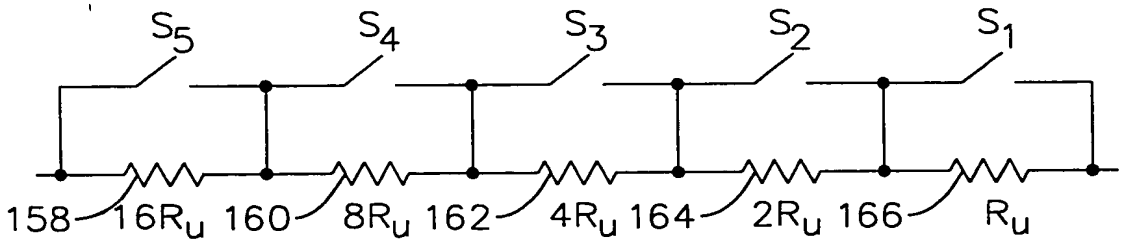


FIG. 12b



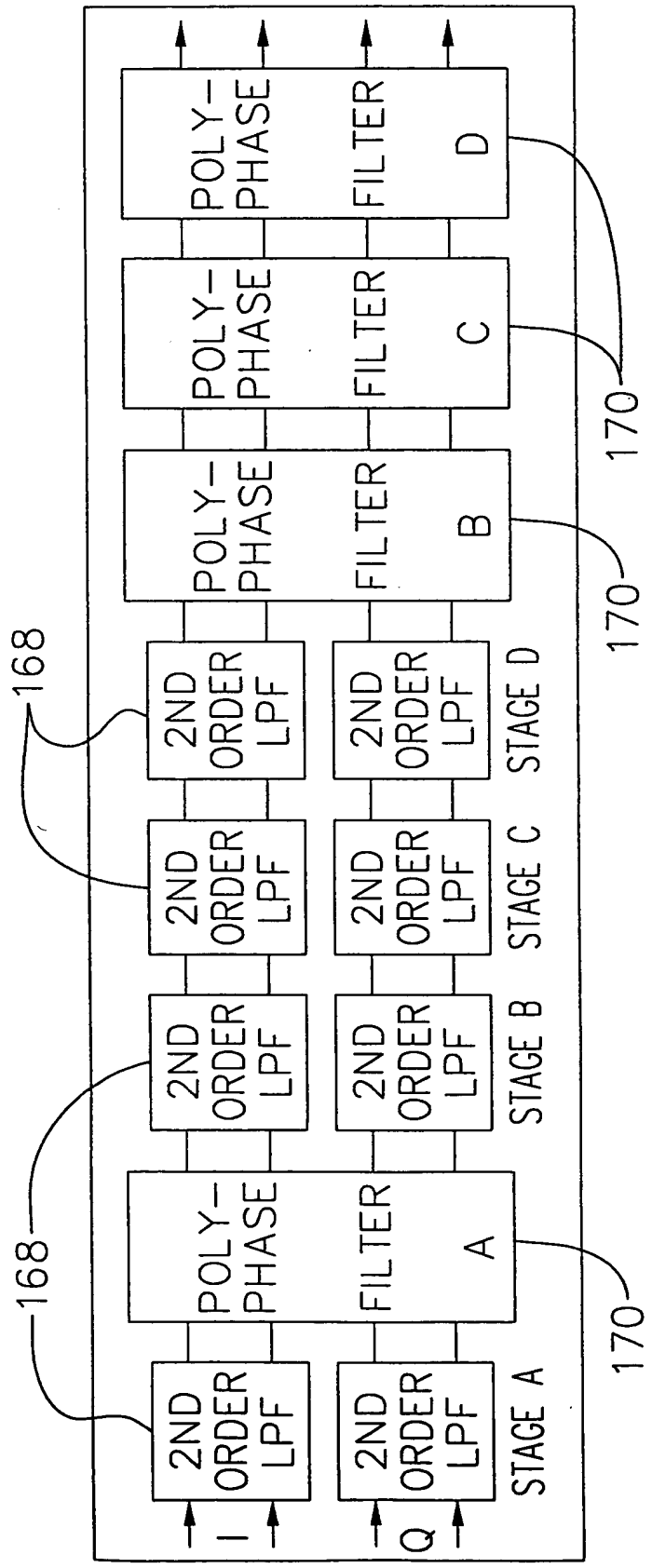


FIG. 13

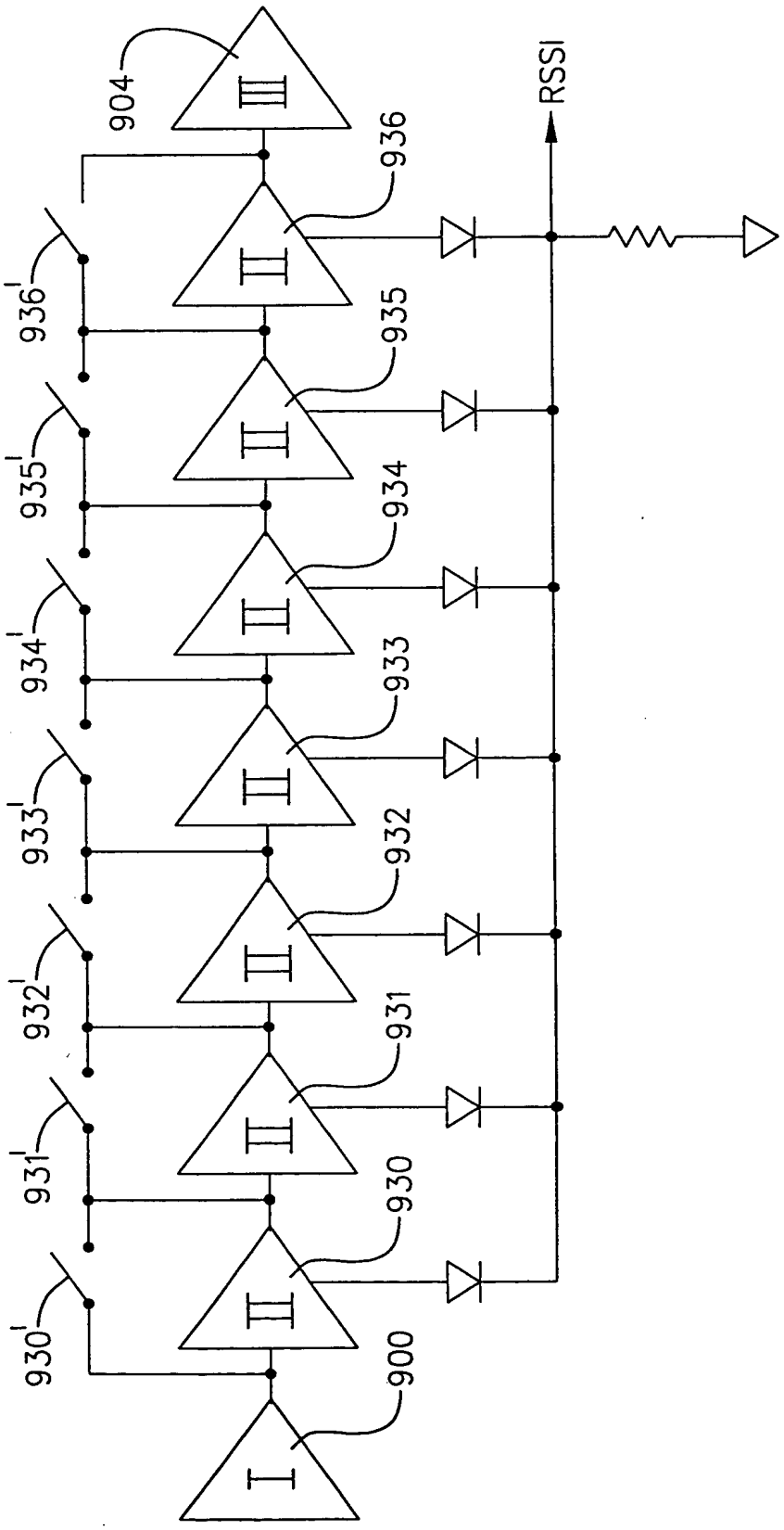


FIG. 14

FIG. 15

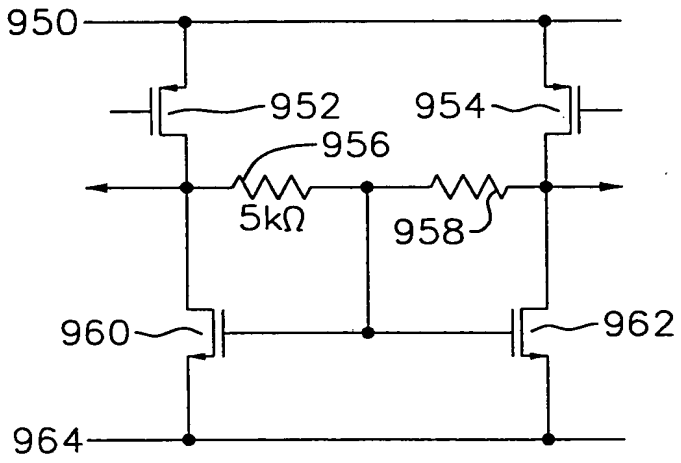


FIG. 16a

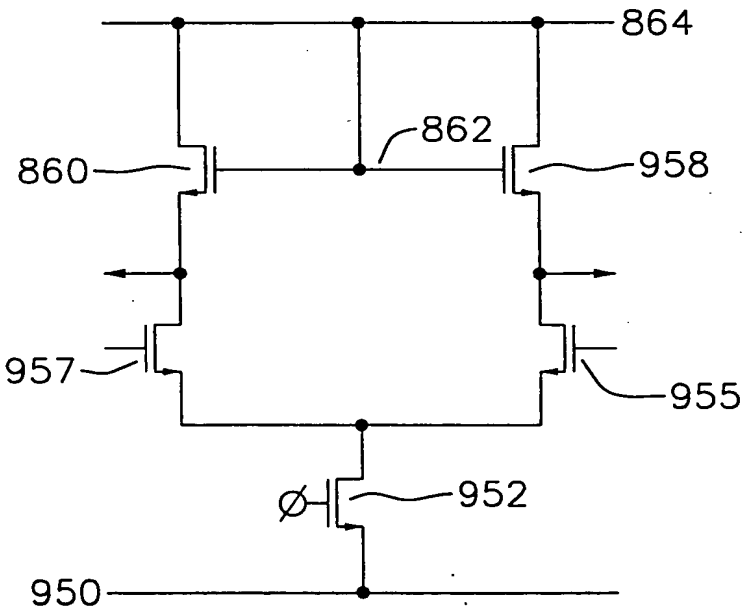


FIG. 16b

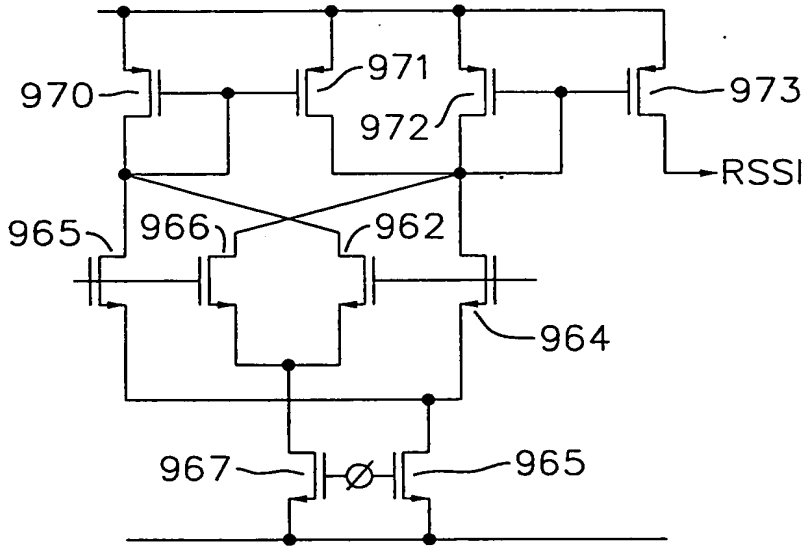


FIG. 17(a)

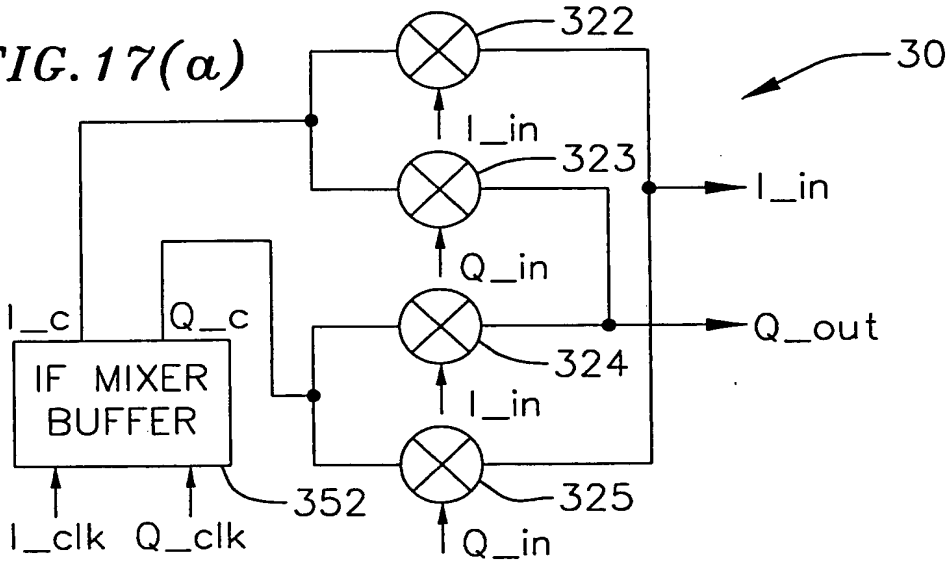
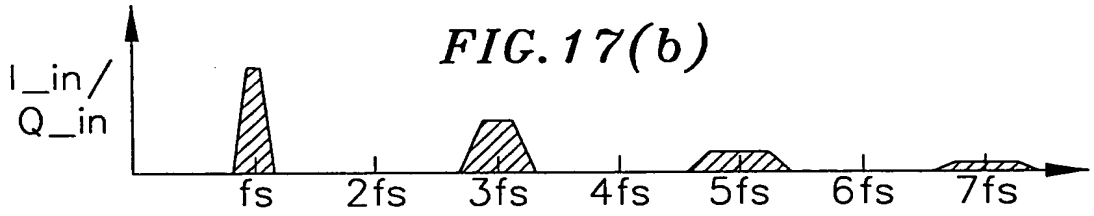
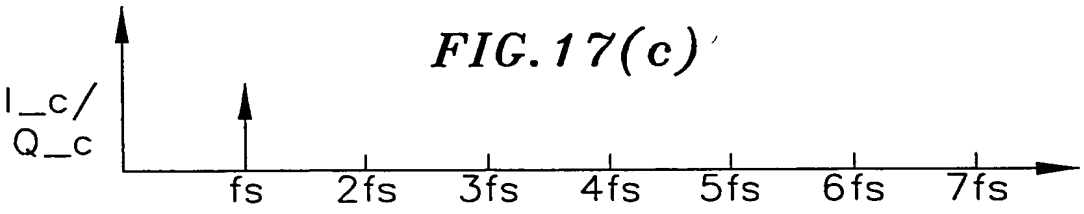


FIG. 17(b)



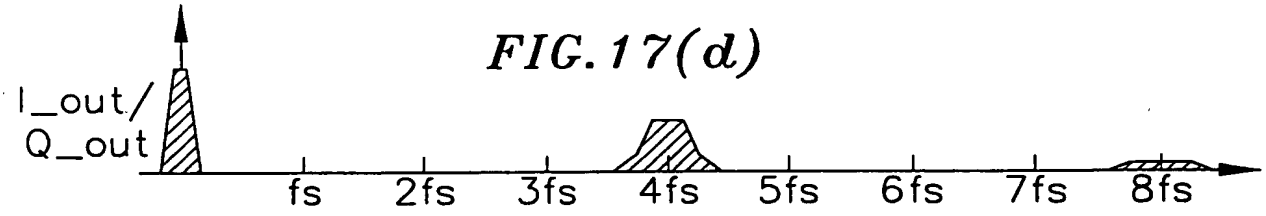
LIMITED IF SIGNAL SPECTRUM

FIG. 17(c)



SINUSOIDAL INPUT SPECTRUM

FIG. 17(d)



IF MIXER OUTPUT SPECTRUM

FIG. 18

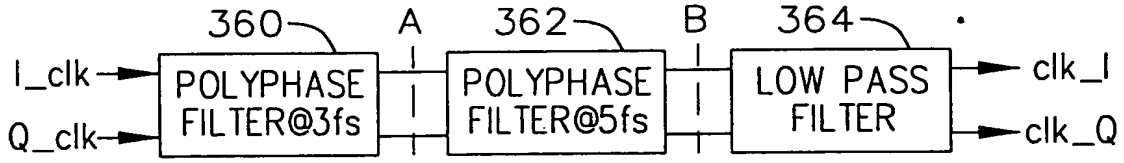
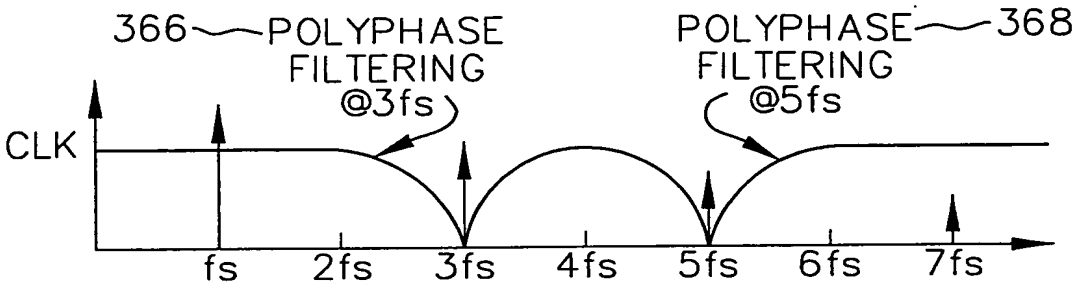
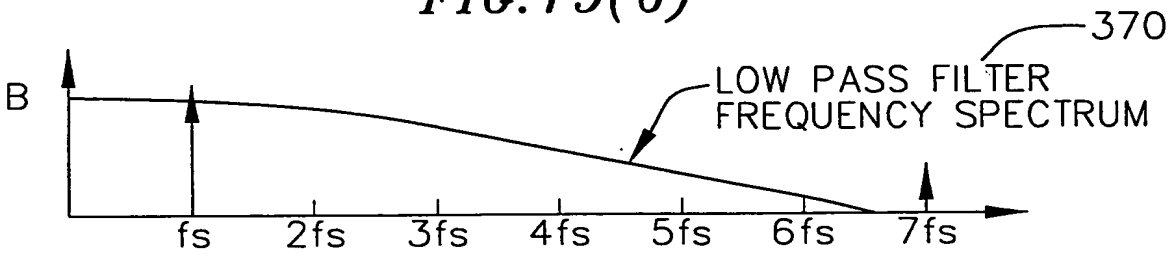


FIG. 19(a)



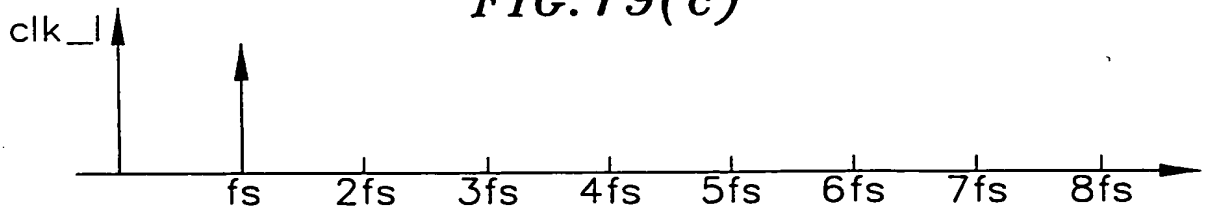
DIFFERENTIAL INPUT CLOCK SIGNAL SPECTRUM

FIG. 19(b)



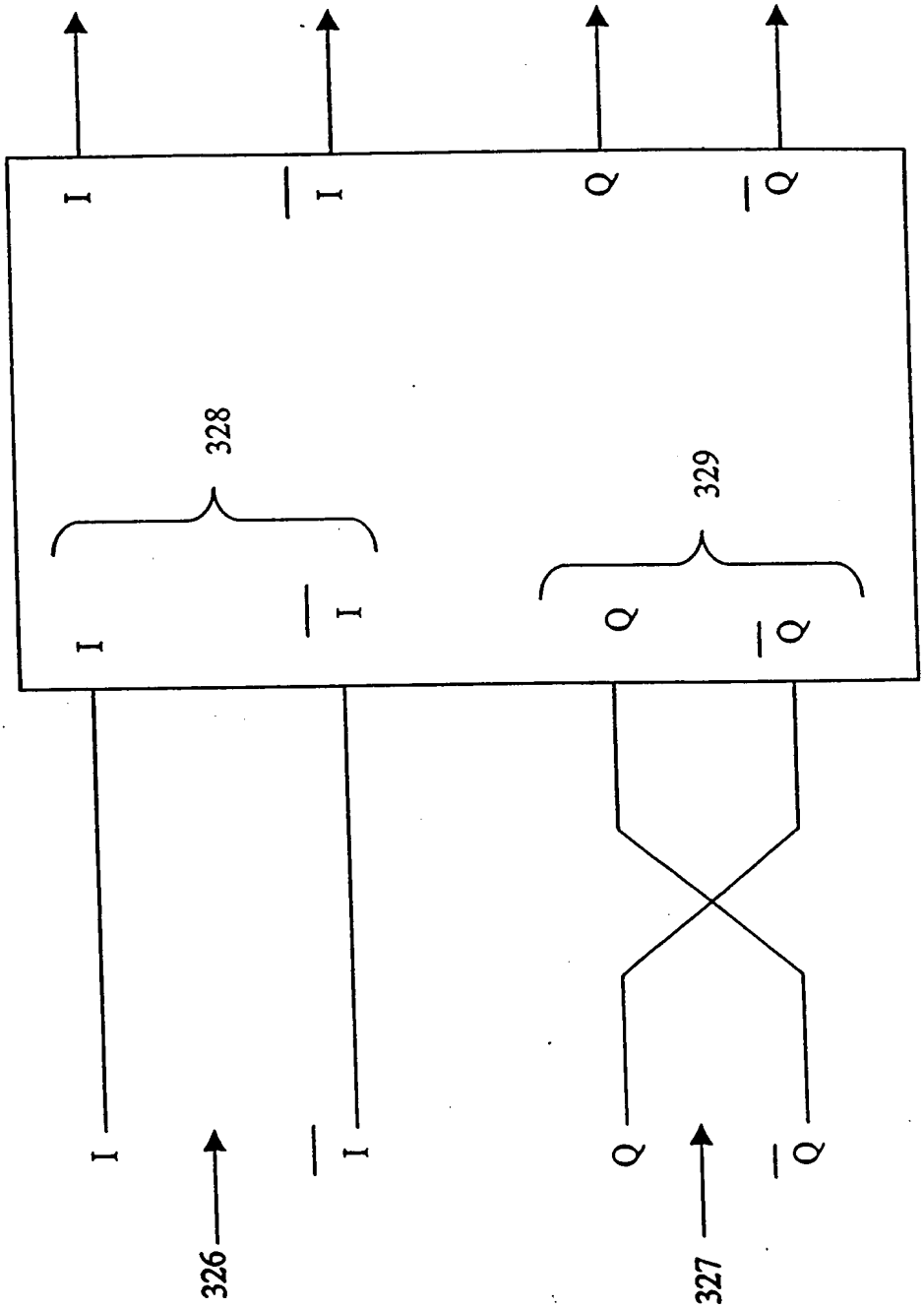
SIGNAL SPECTRUM AFTER 3fs AND 5fs POLYPHASE

FIG. 19(c)



SINUSOIDAL SIGNAL GENERATION AFTER LOW PASS FILTER

FIG. 19d



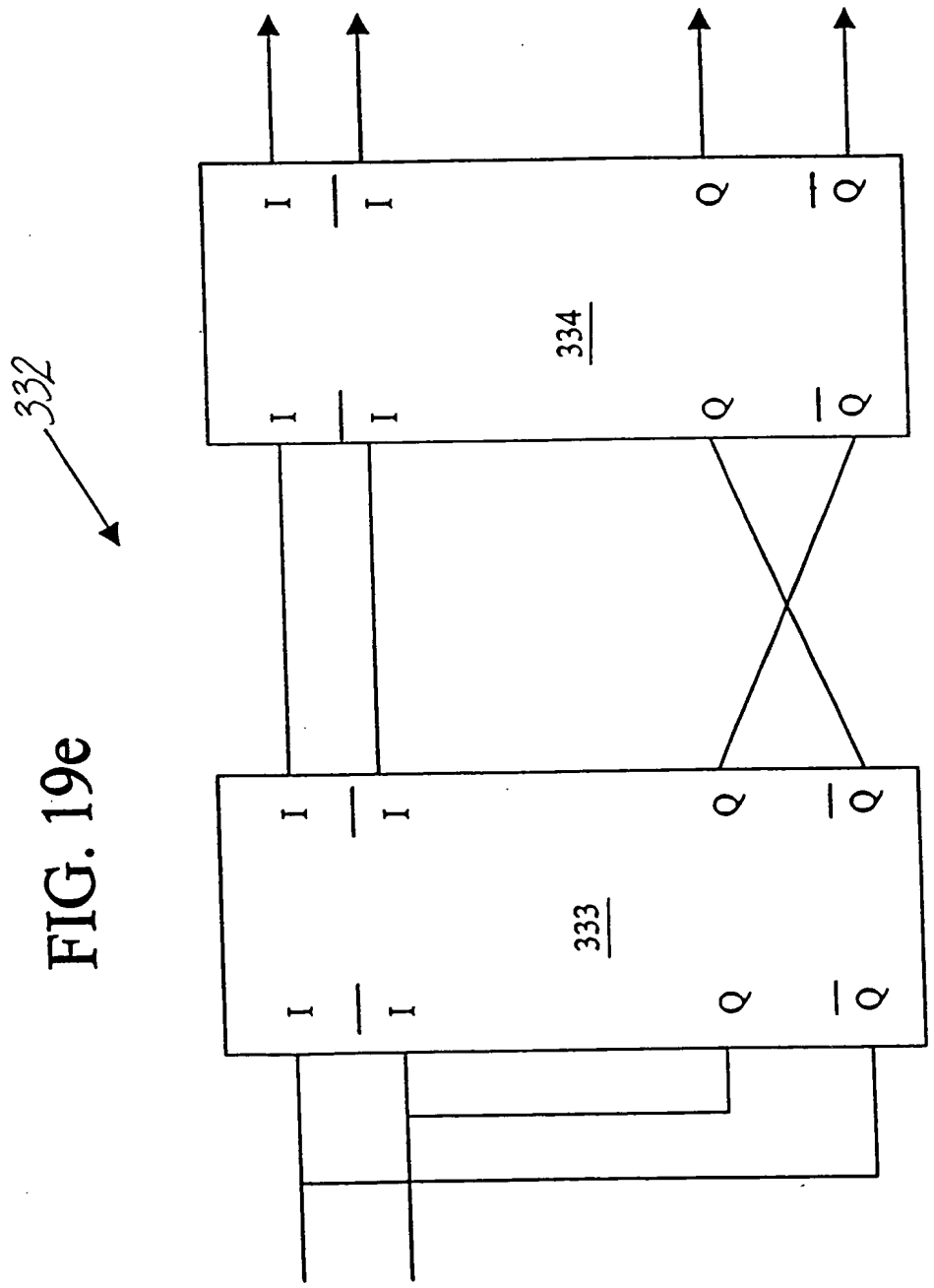


FIG. 19e

FIG. 19f

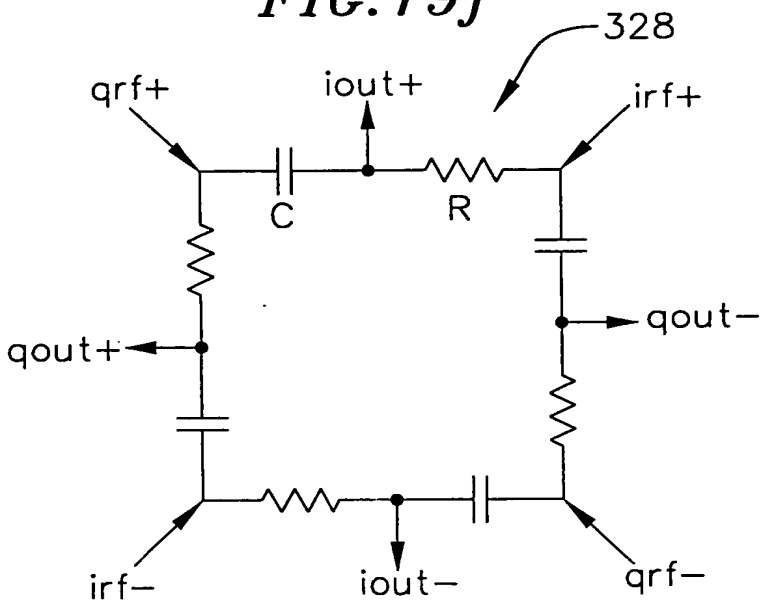
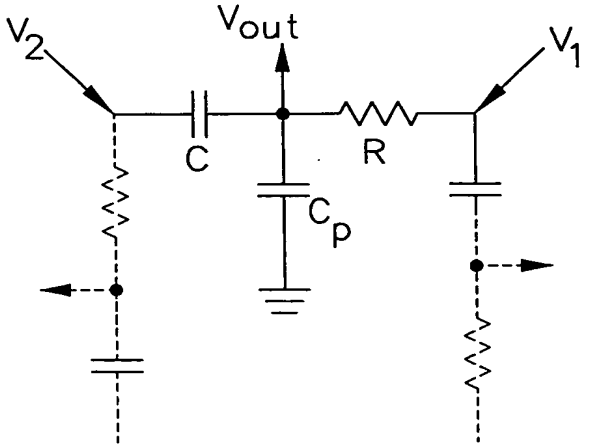


FIG. 19g

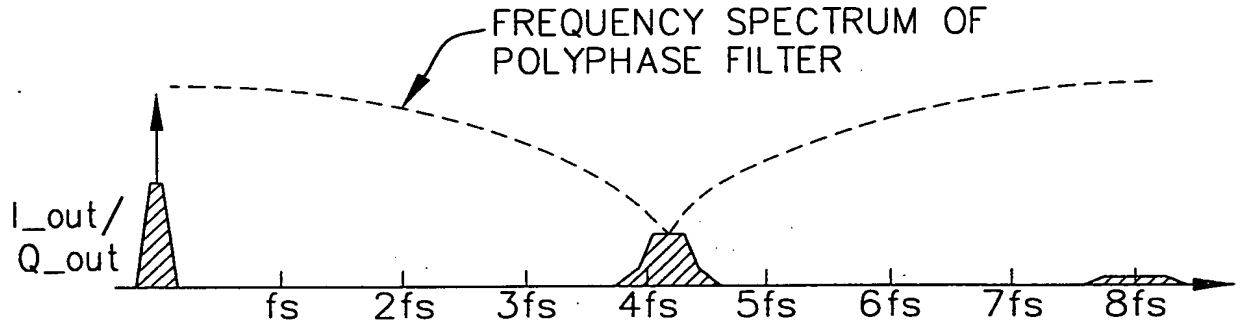


$$\omega_p = \frac{1}{R(C_p + C)}$$

$$\omega_o = \frac{1}{RC}$$

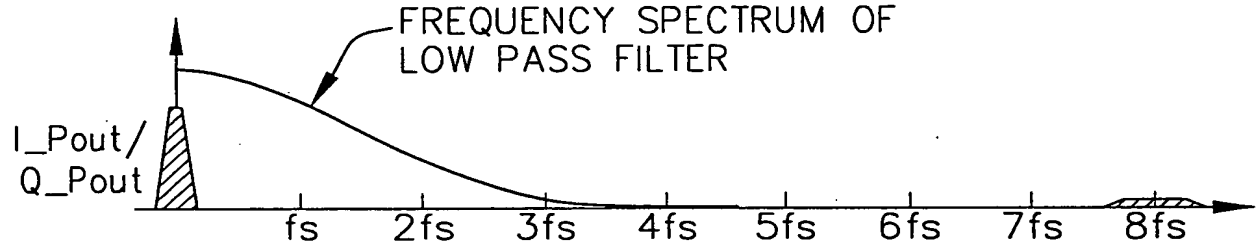
$$V_{out} = \frac{V_1}{R(C_p + C)s + 1} + \frac{V_2 RCs}{R(C_p + C)s + 1}$$

FIG.20(a)



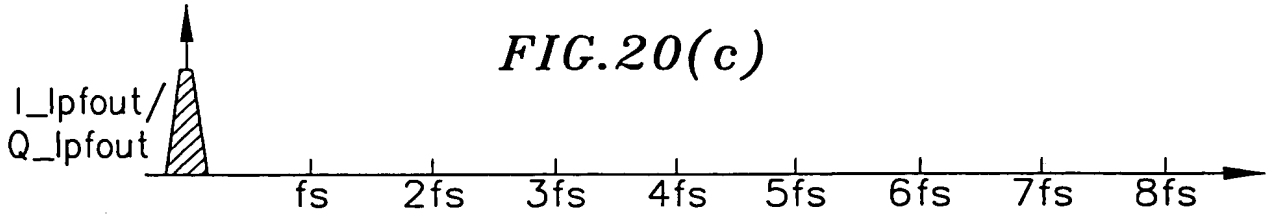
SIGNAL SPECTRUM AT POLYPHASE OUTPUT

FIG.20(b)



SIGNAL SPECTRUM AT POLYPHASE OUTPUT

FIG.20(c)



SIGNAL SPECTRUM AT LOW PASS FILTER OUTPUT

FIG.21

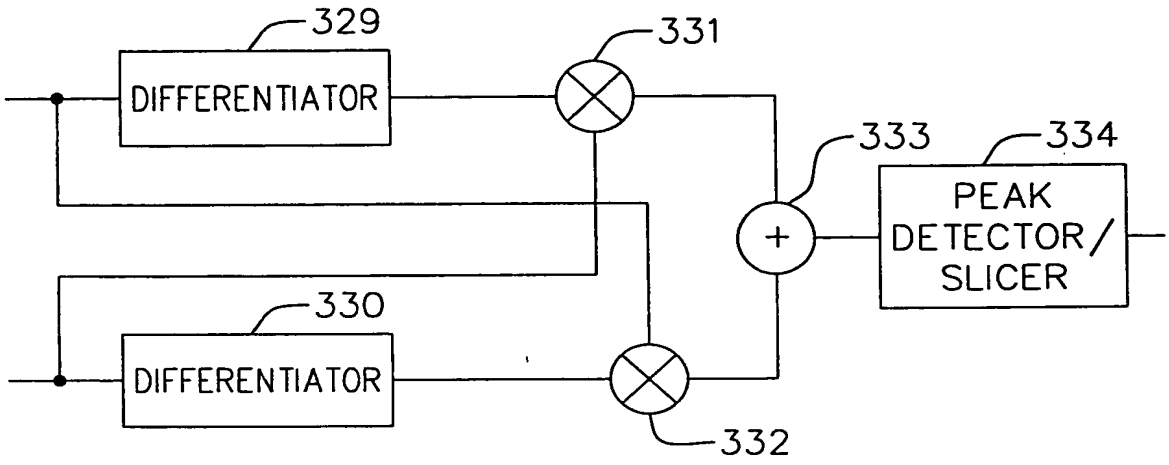


FIG.22

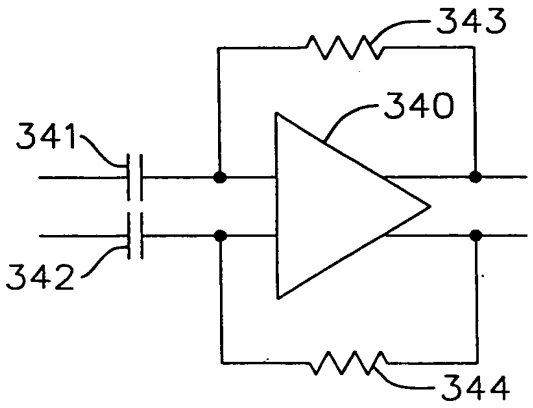


FIG.23

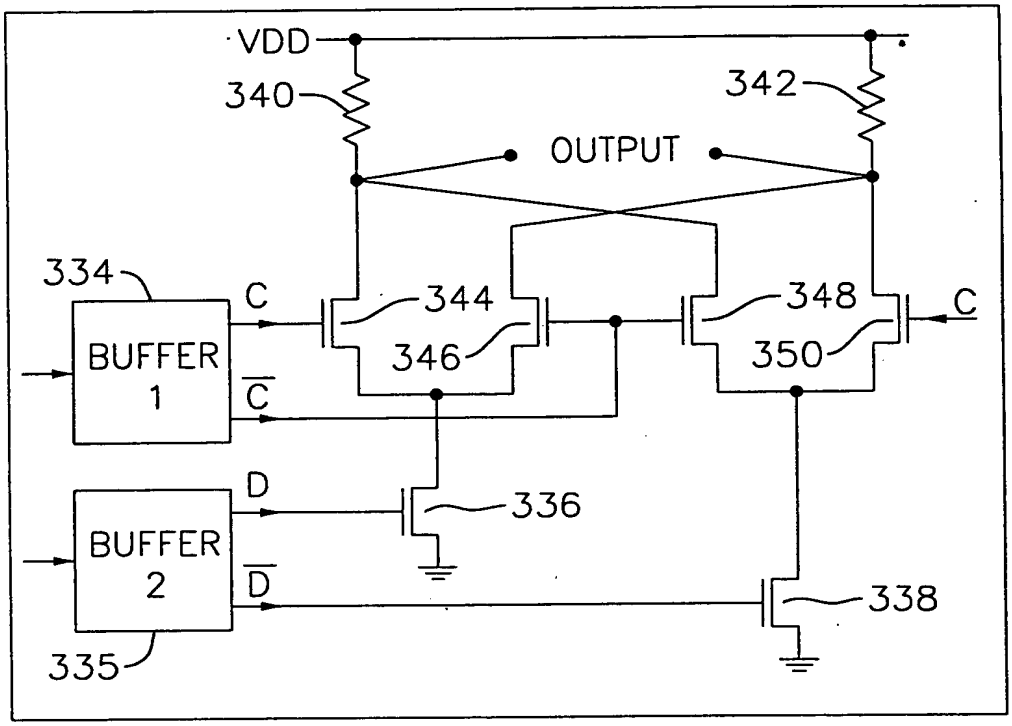
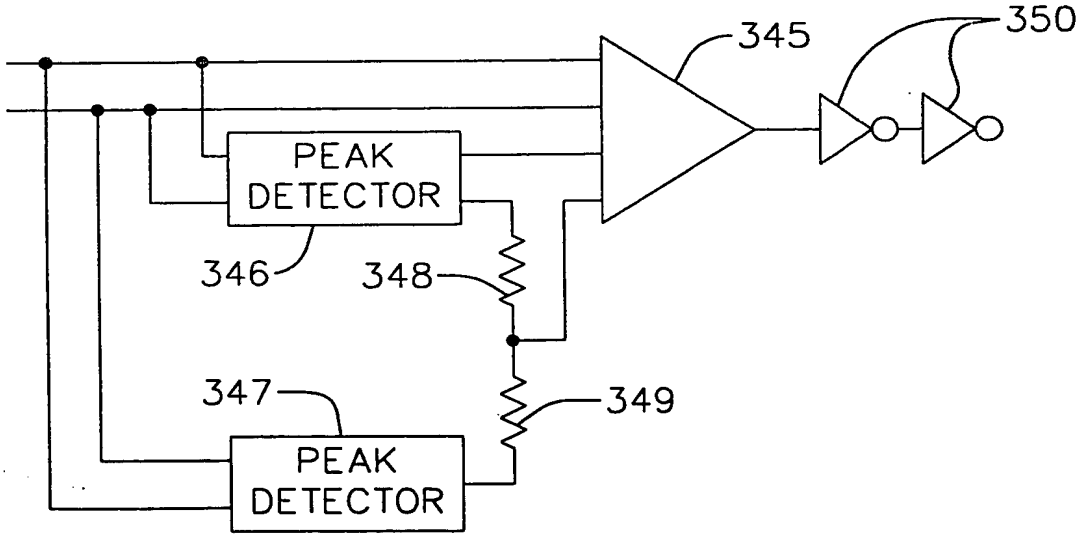


FIG.24



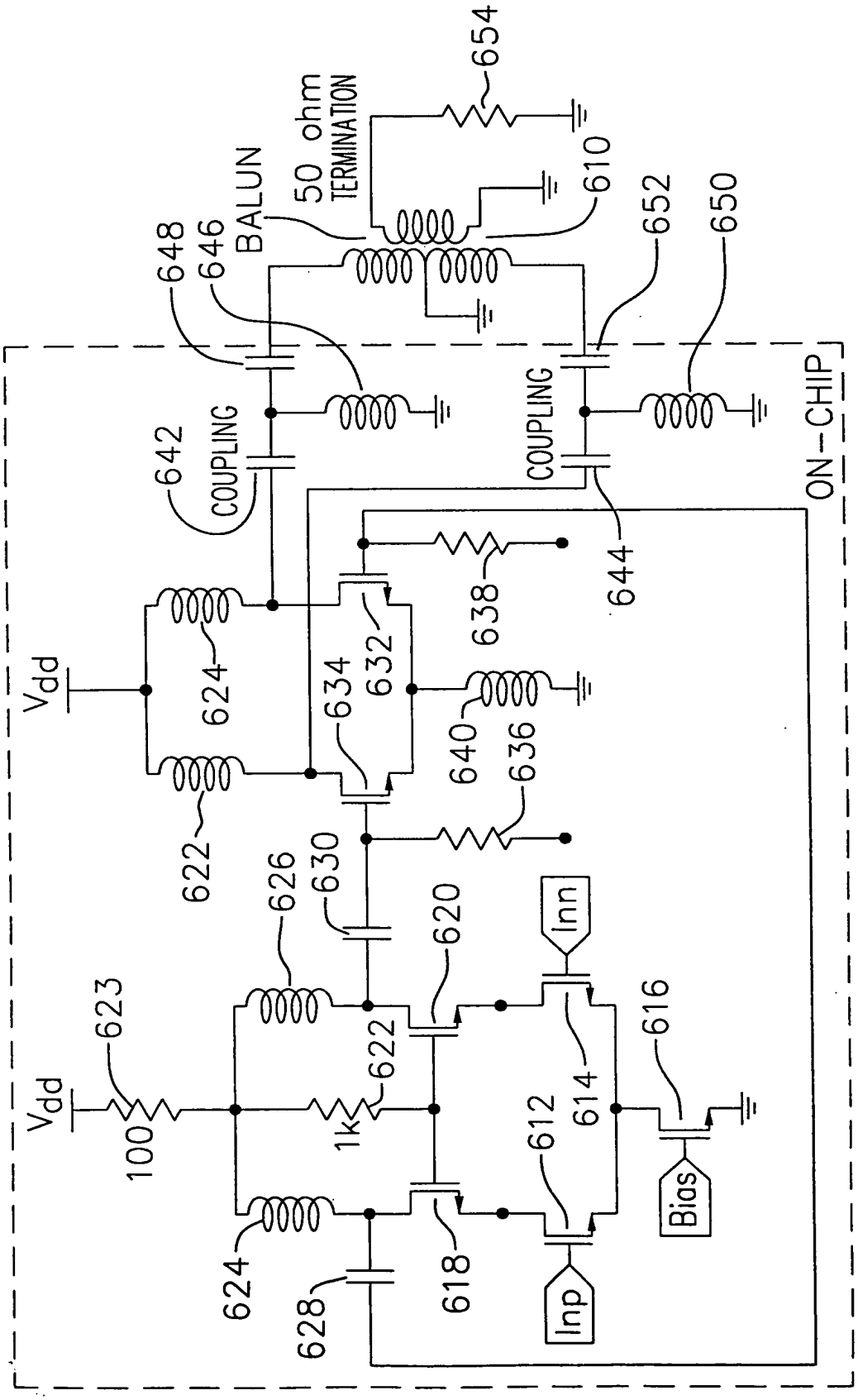


FIG.25

FIG.26a

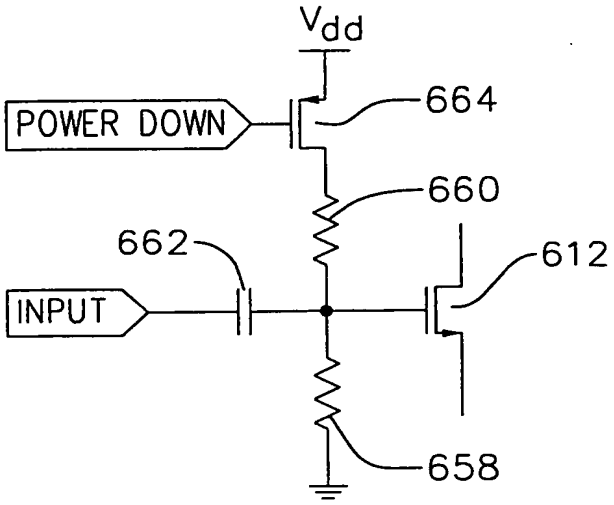


FIG.26b

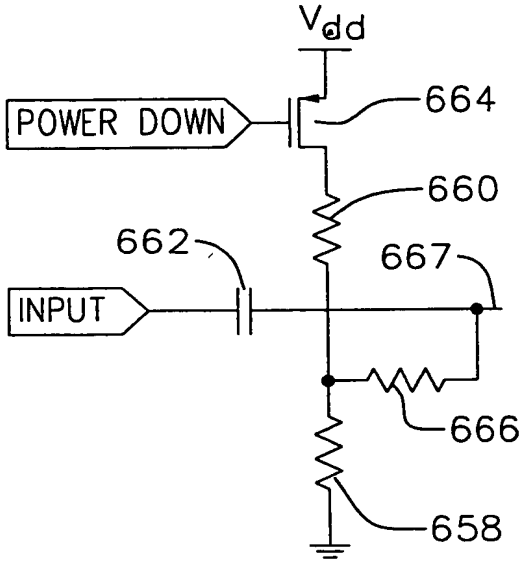


FIG.27

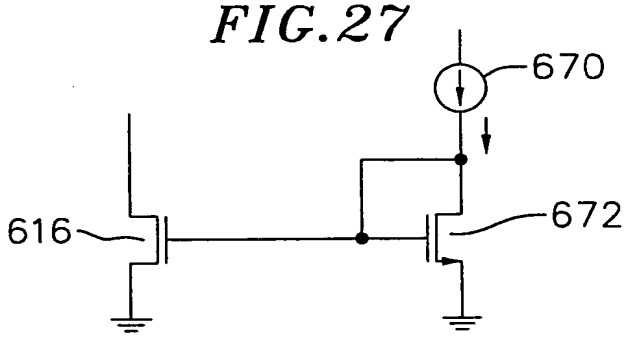


FIG.28

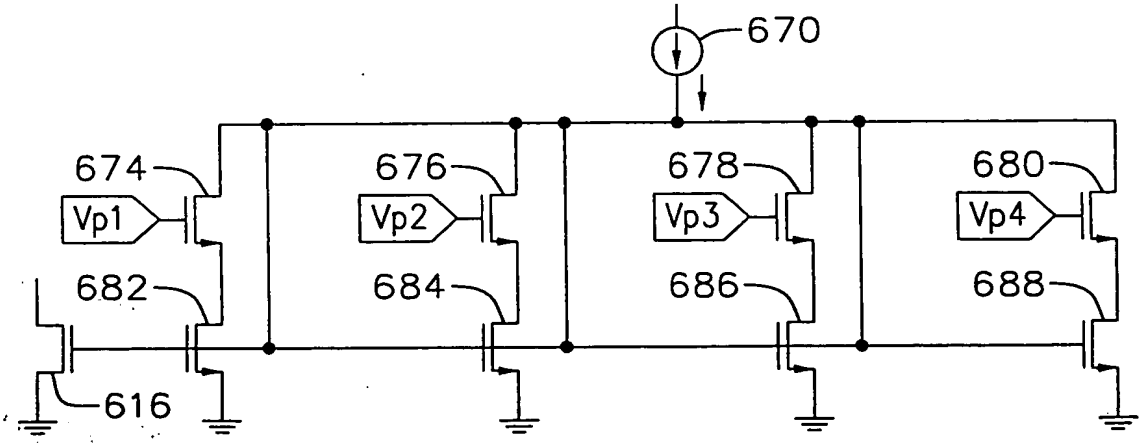


FIG.29

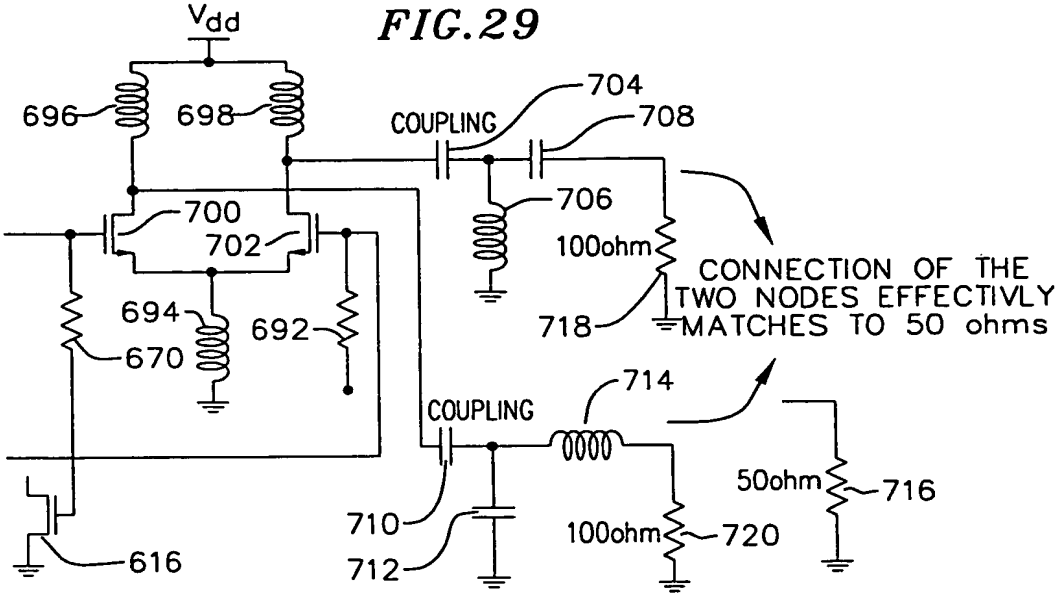
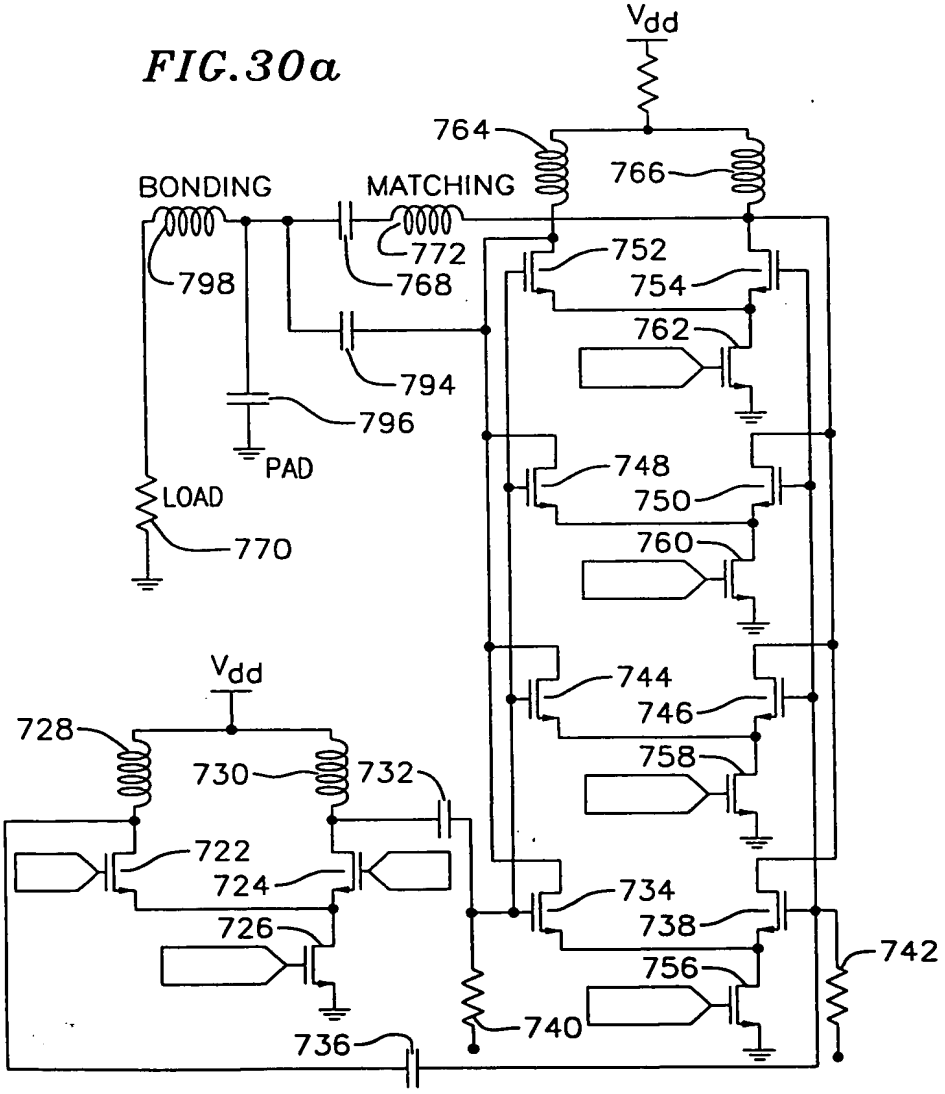


FIG.30a



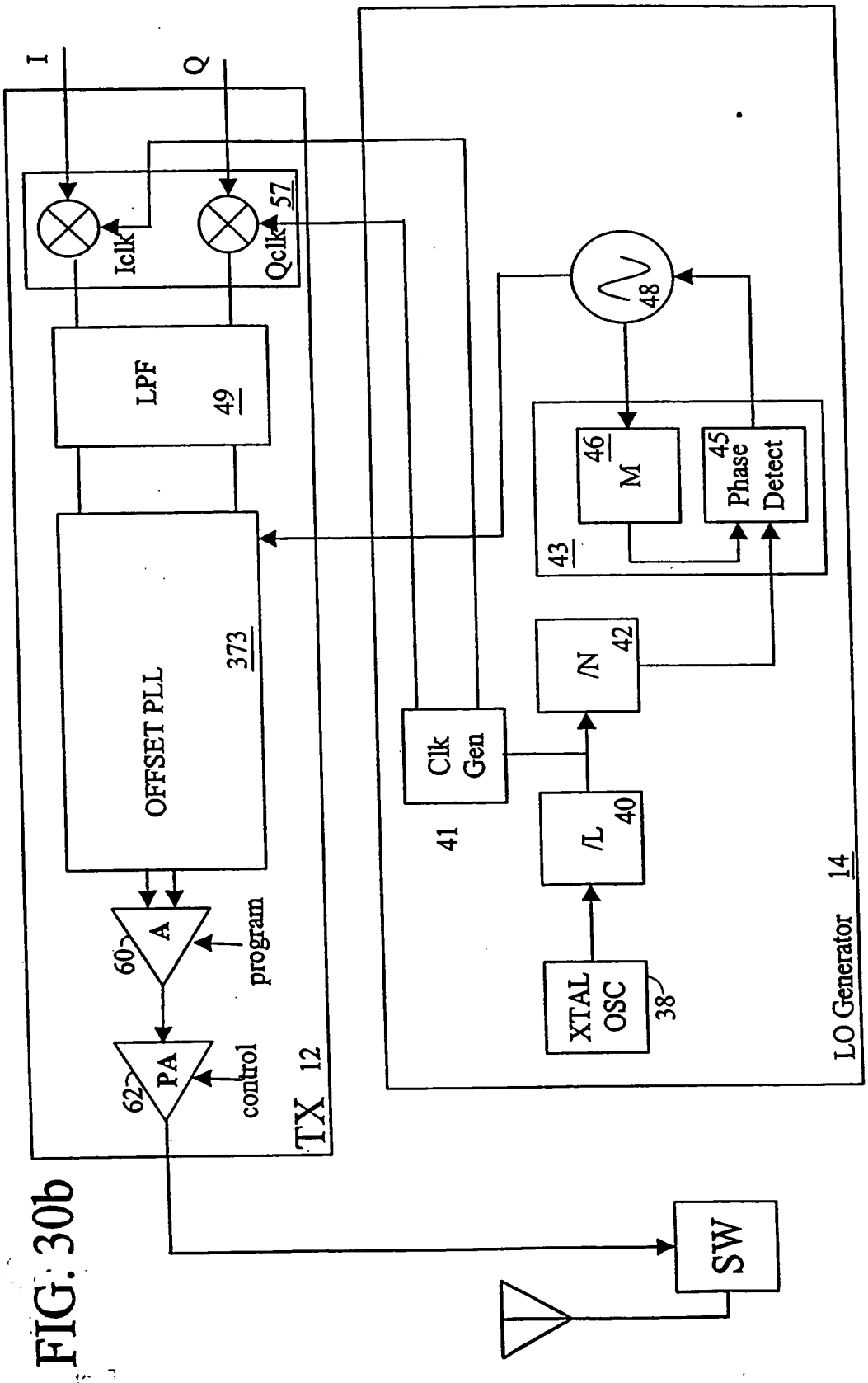


FIG. 30b

FIG. 30c

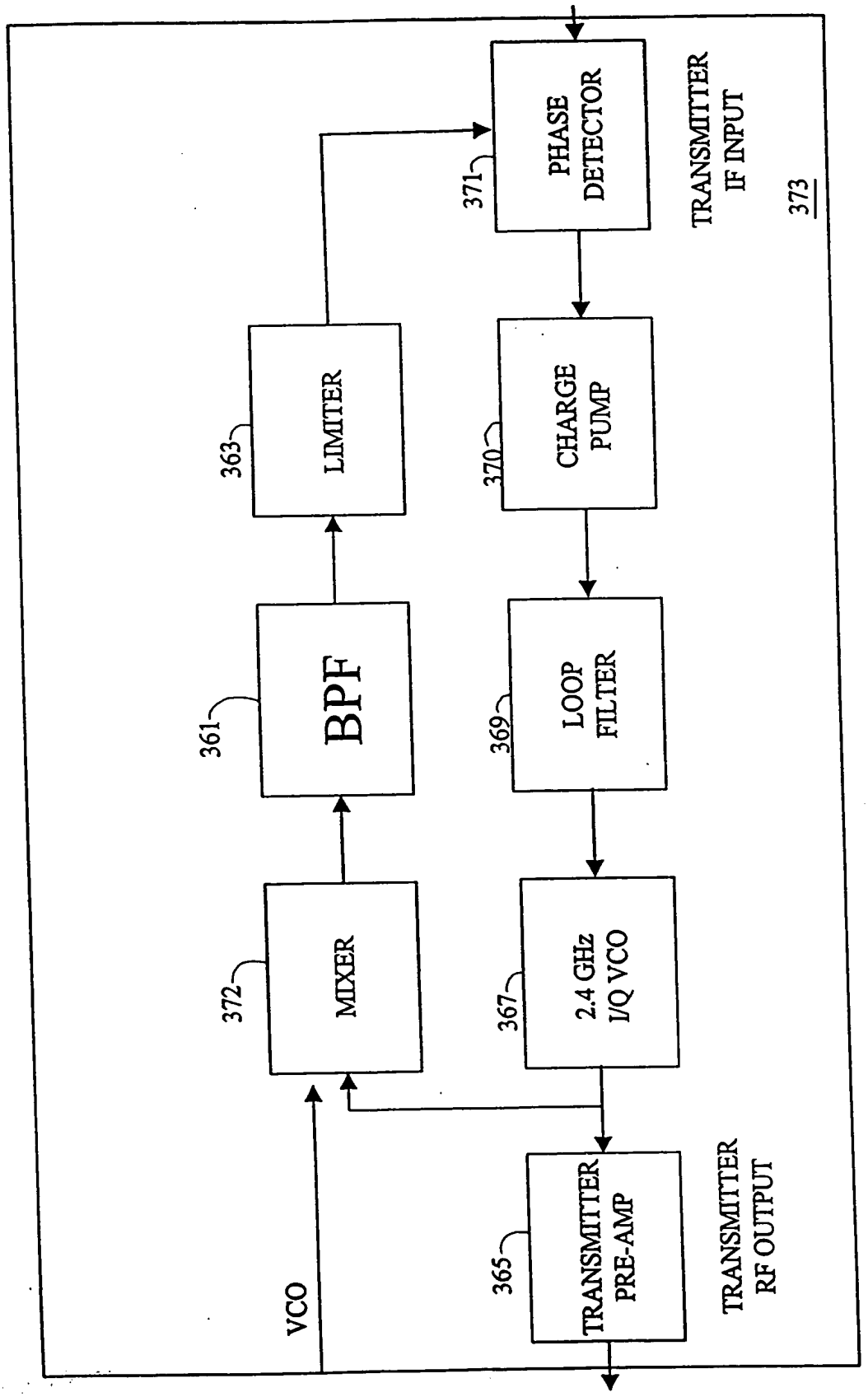


FIG. 30d

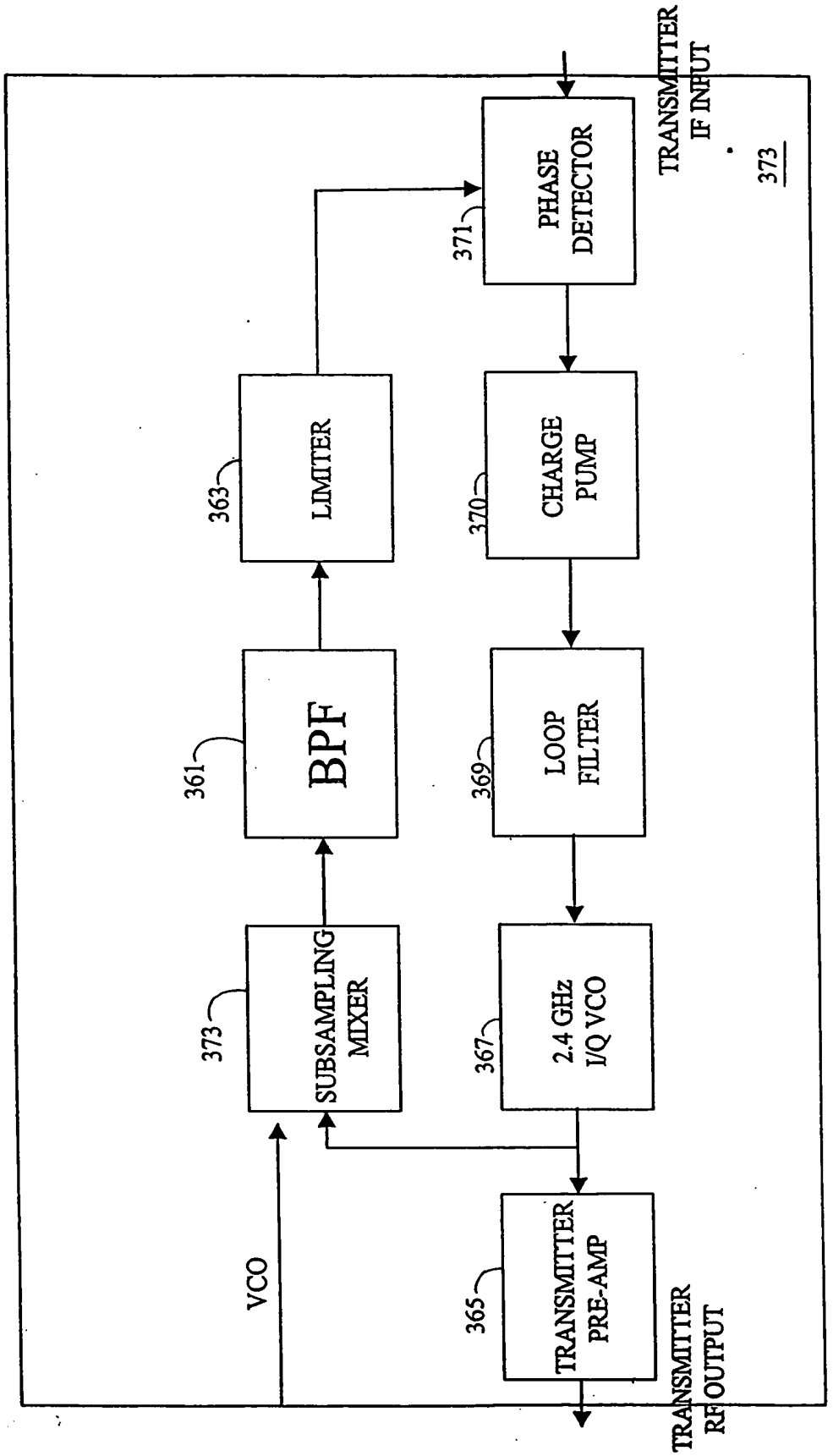


Fig. 30e

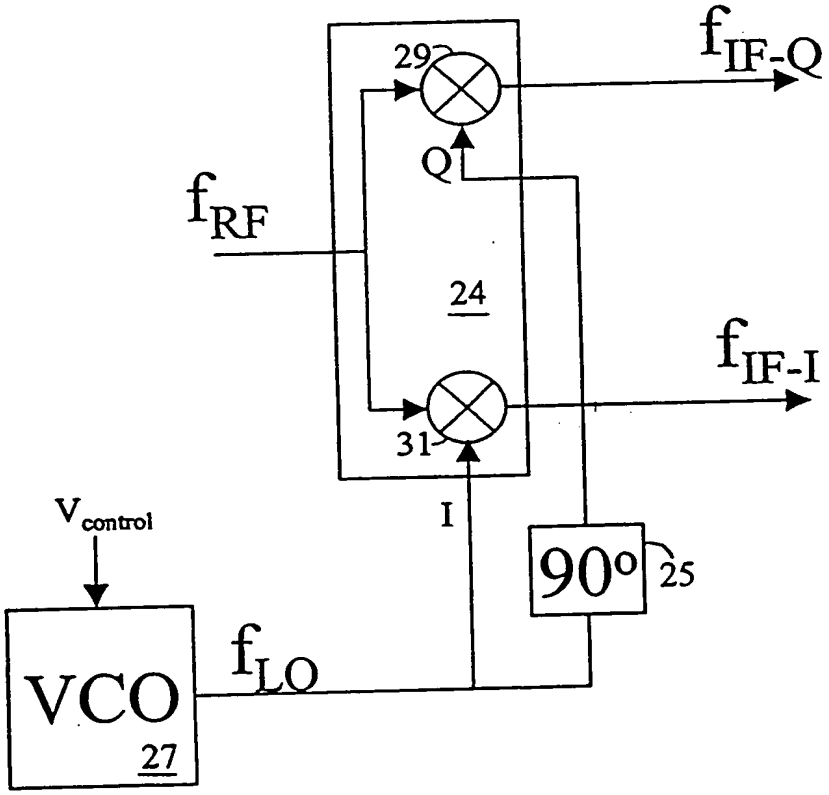


Fig. 30f

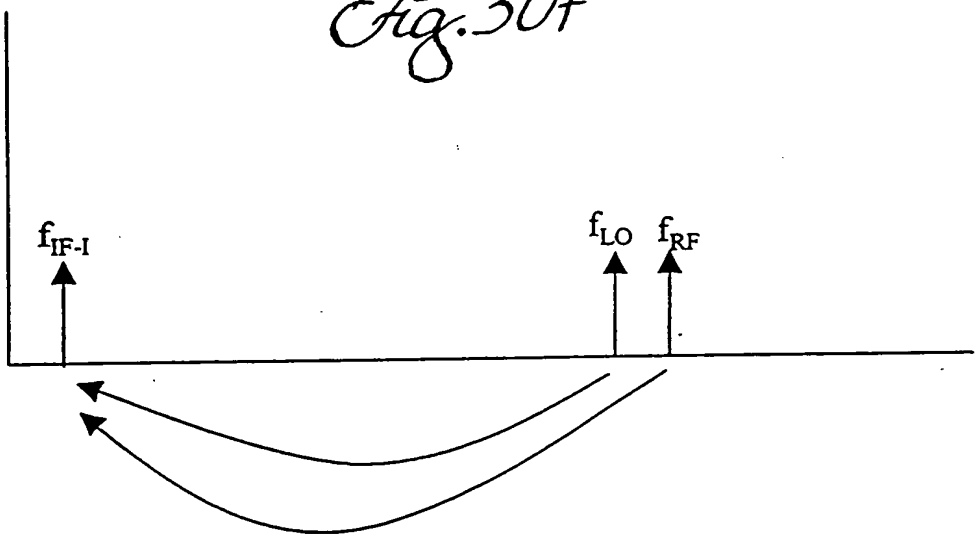
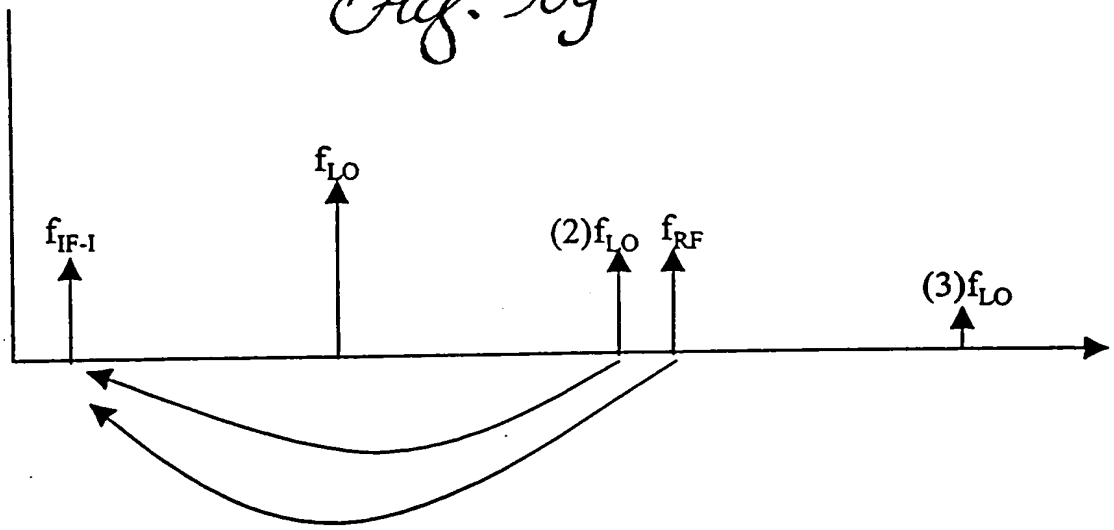


Fig. 30g



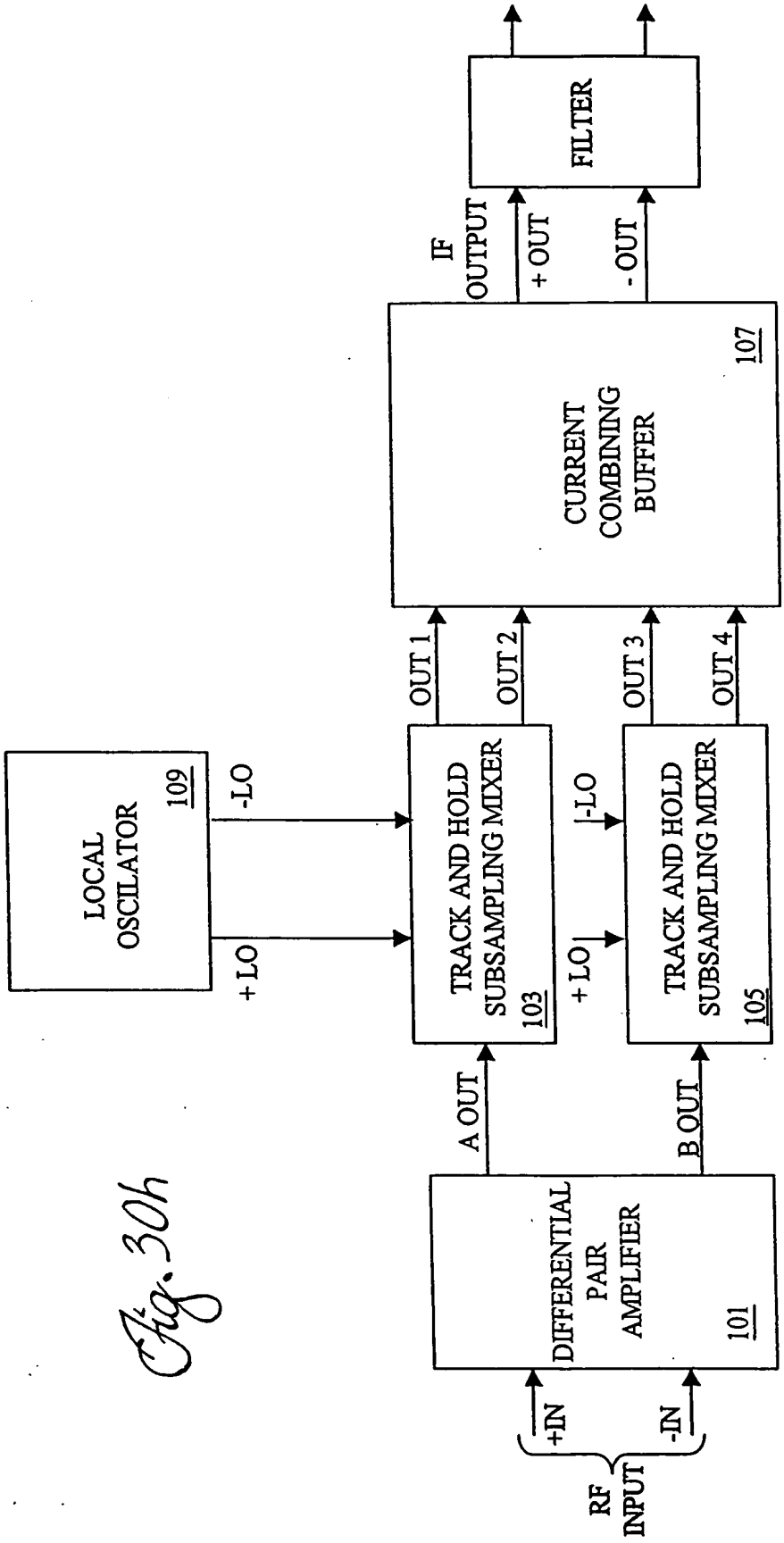


Fig. 30h

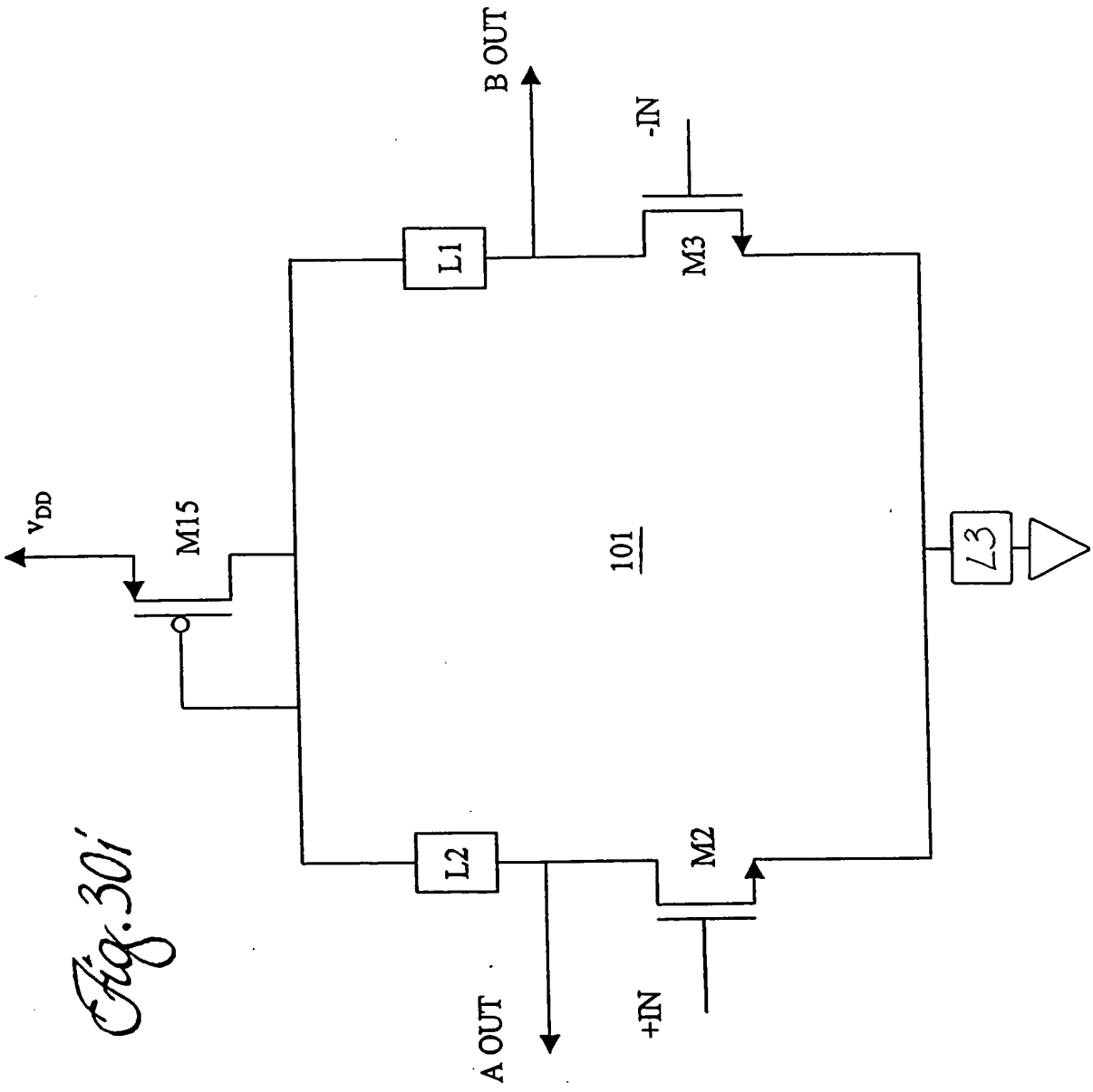


Fig. 30'

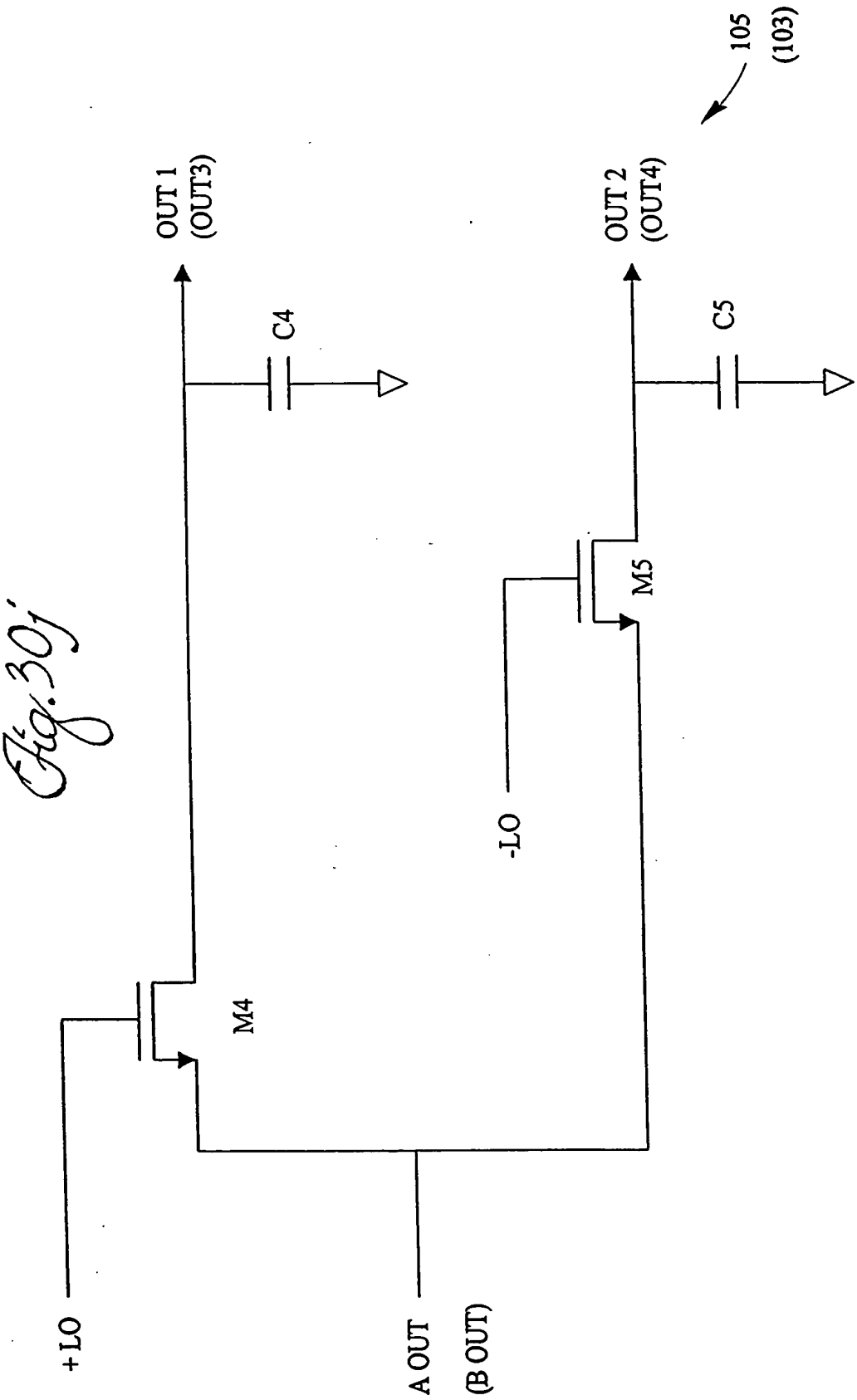


Fig. 30'

Fig. 30k

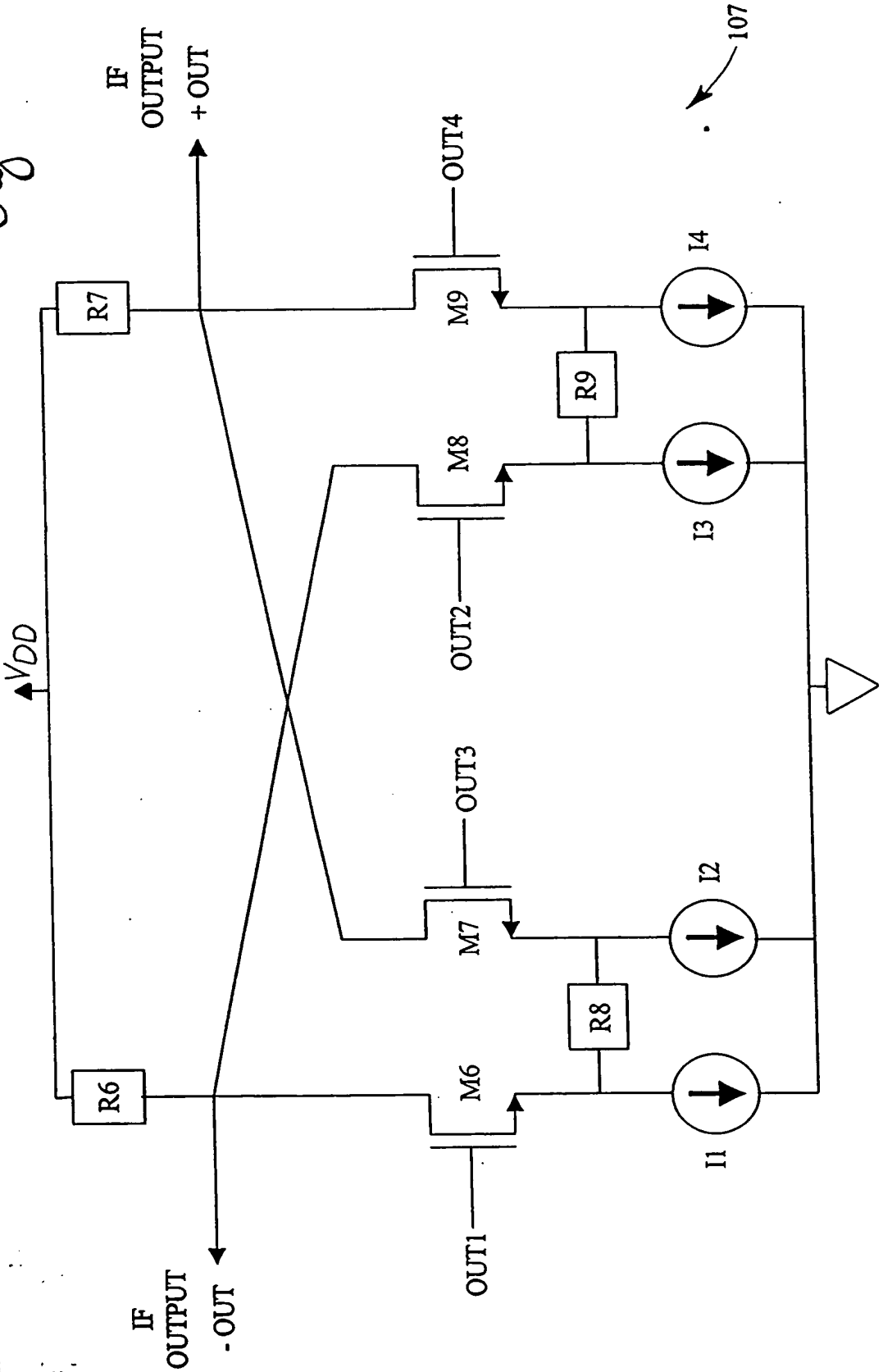
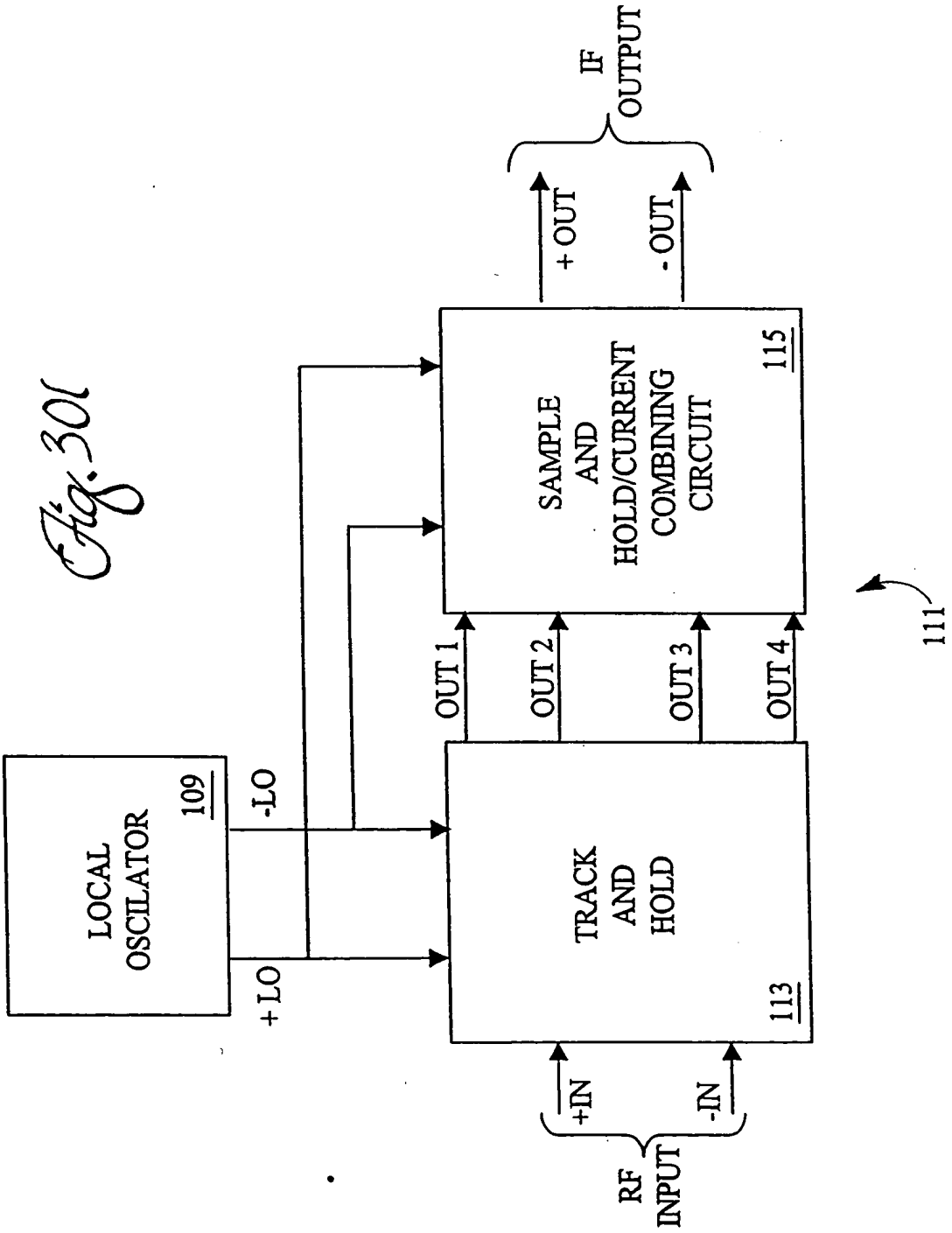


Fig. 30



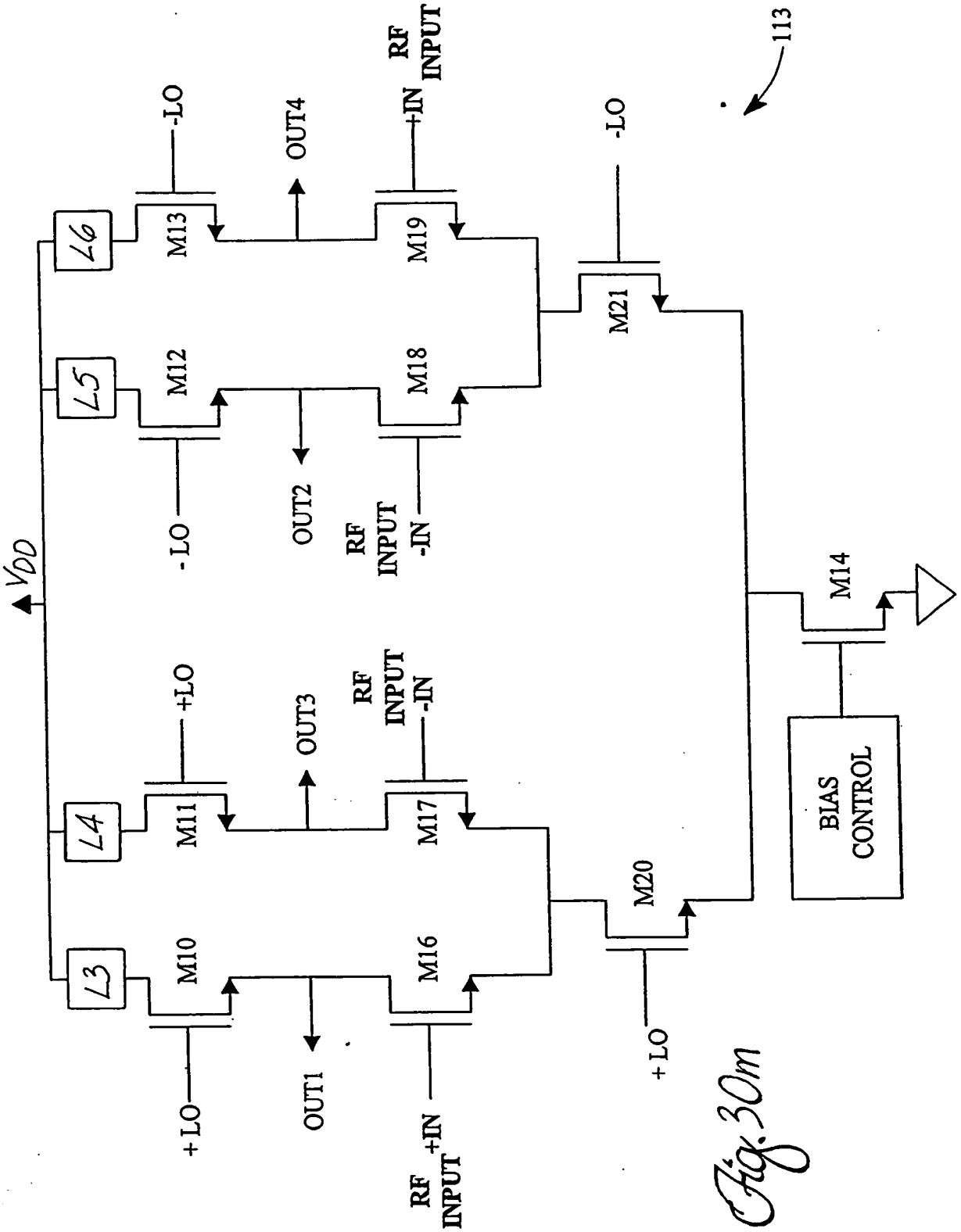


Fig. 30m

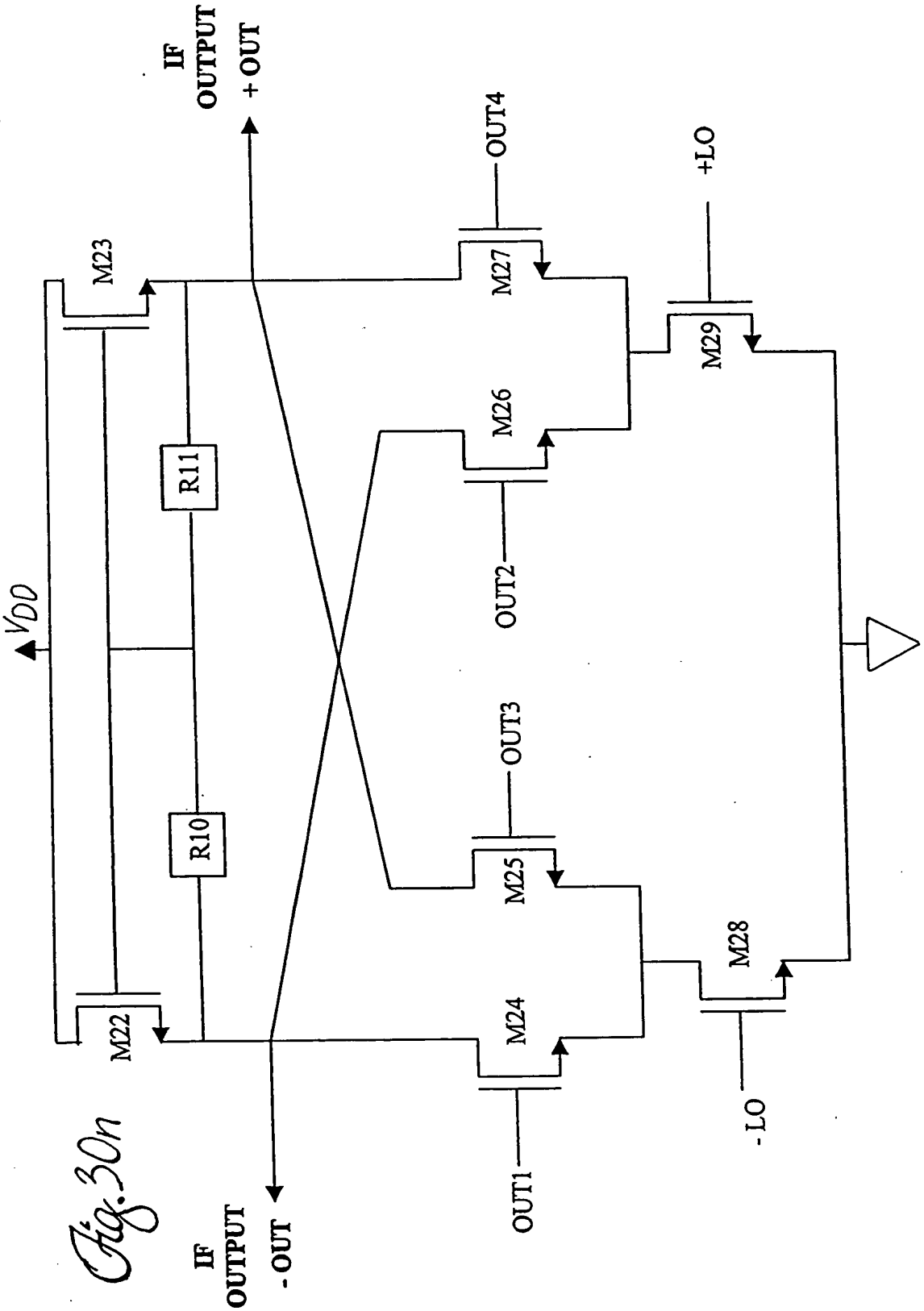


Fig. 30n

FIG.31a

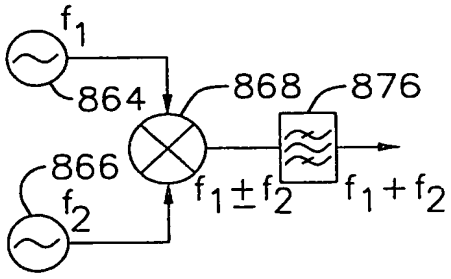


FIG.31b

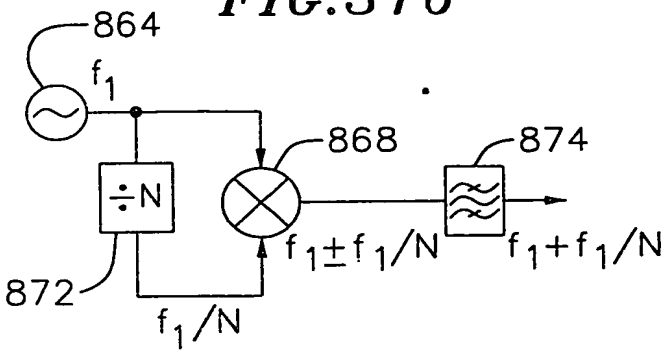


FIG.32

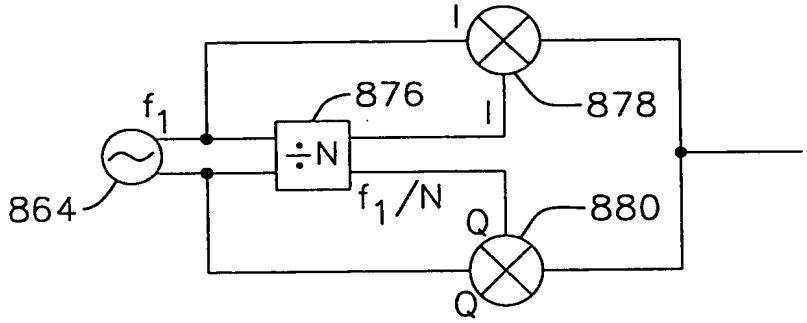


FIG.33

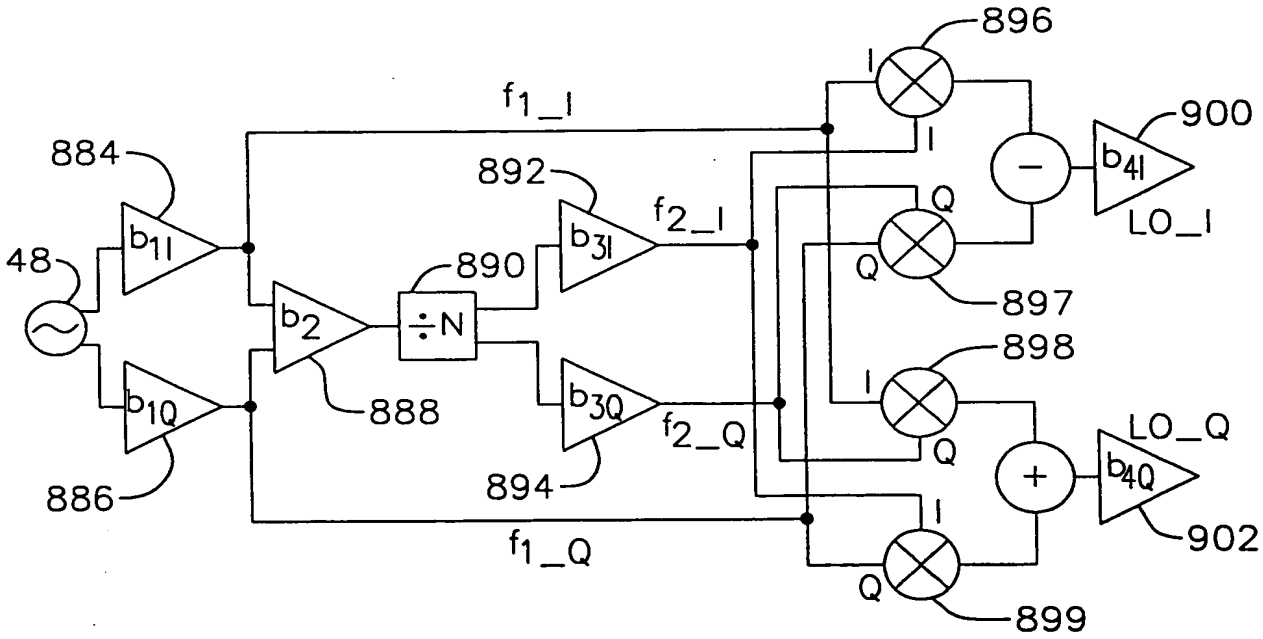


FIG.33b

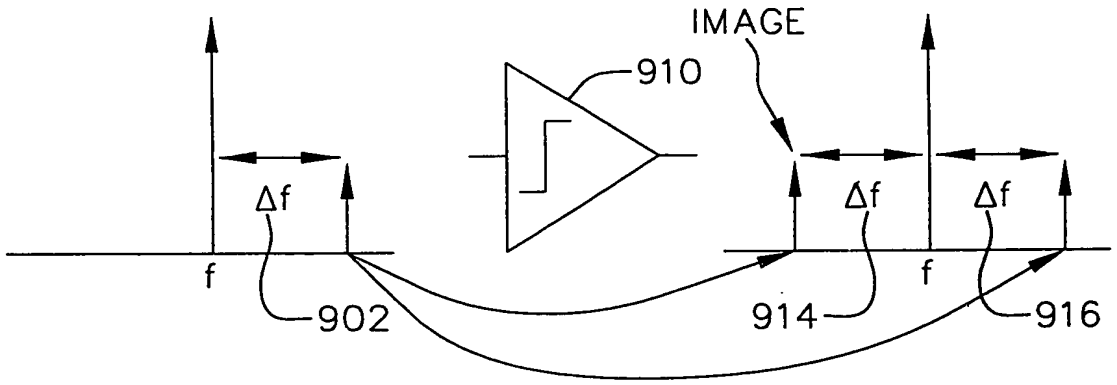


FIG.34

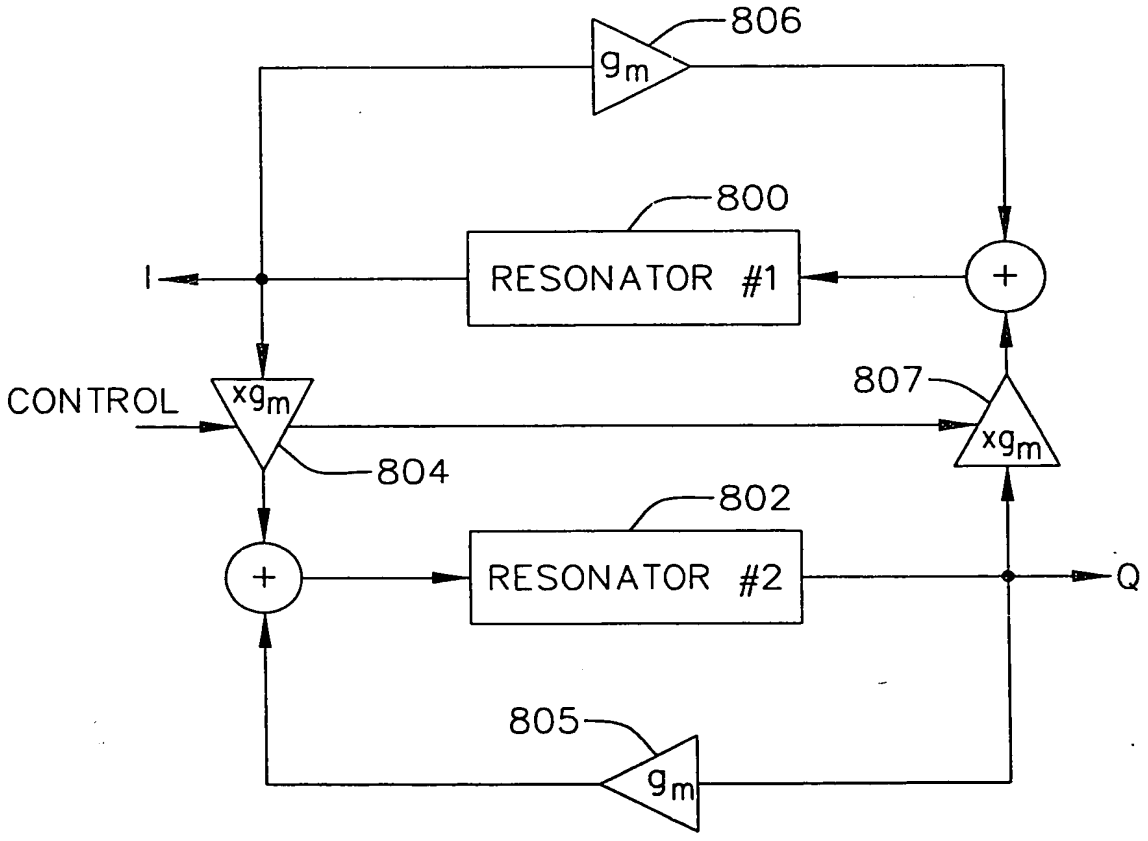


FIG.35

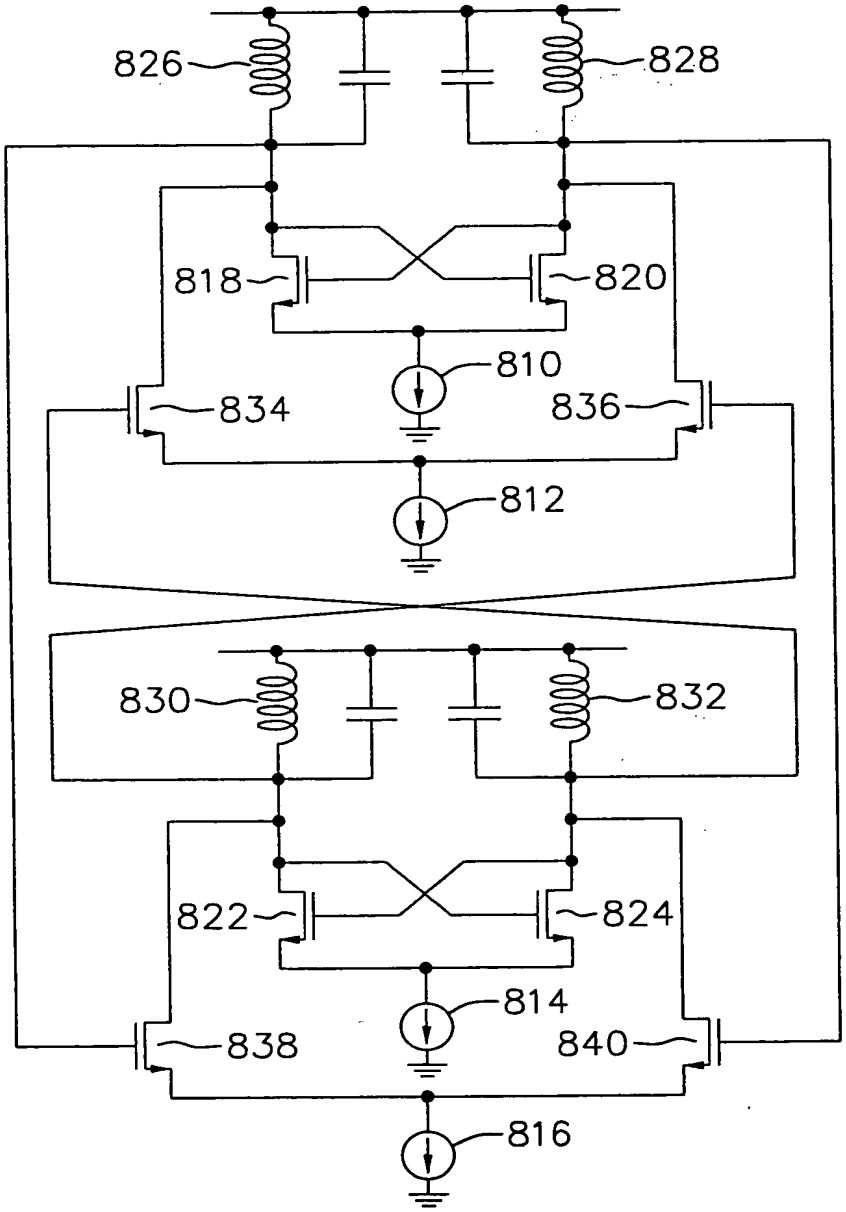
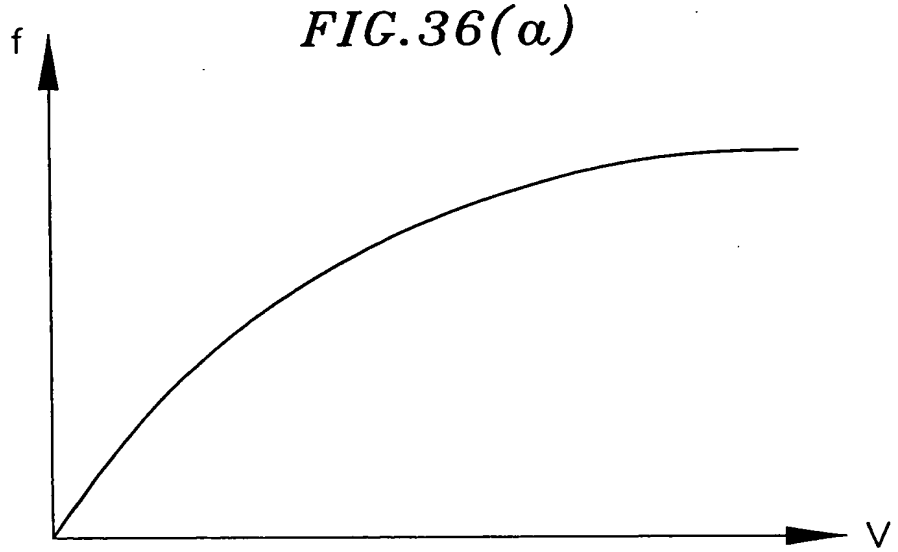
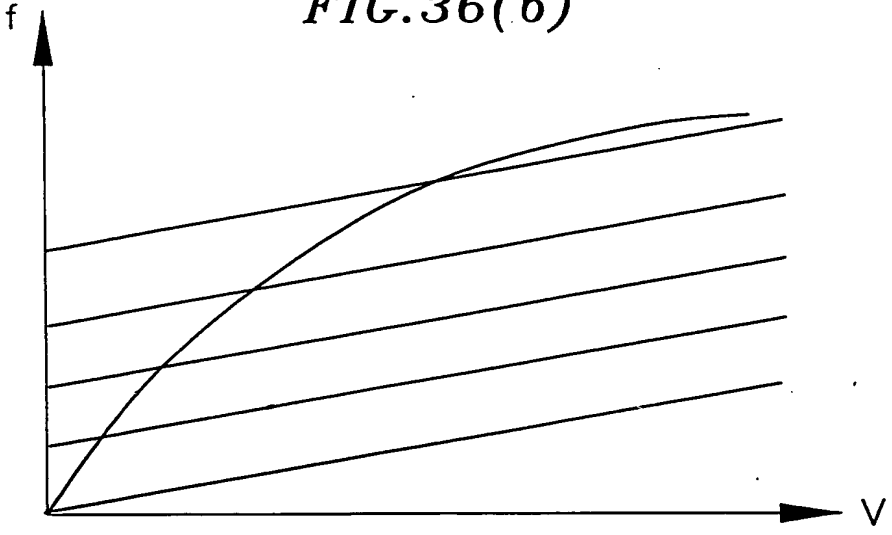


FIG.36(a)



TYPICAL VCO TUNING CURVE

FIG.36(b)



SEGMENTED VCO TUNING CURVE

FIG.37a

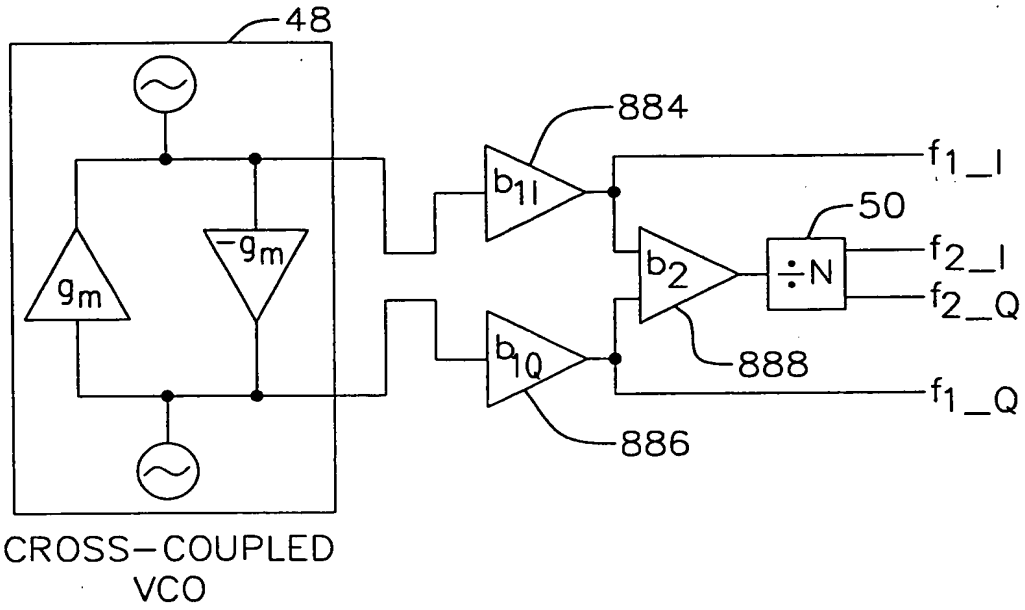


FIG.37b

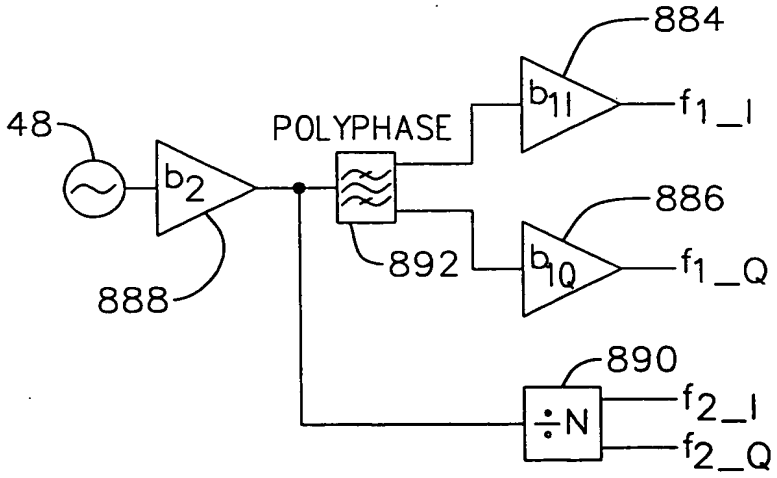
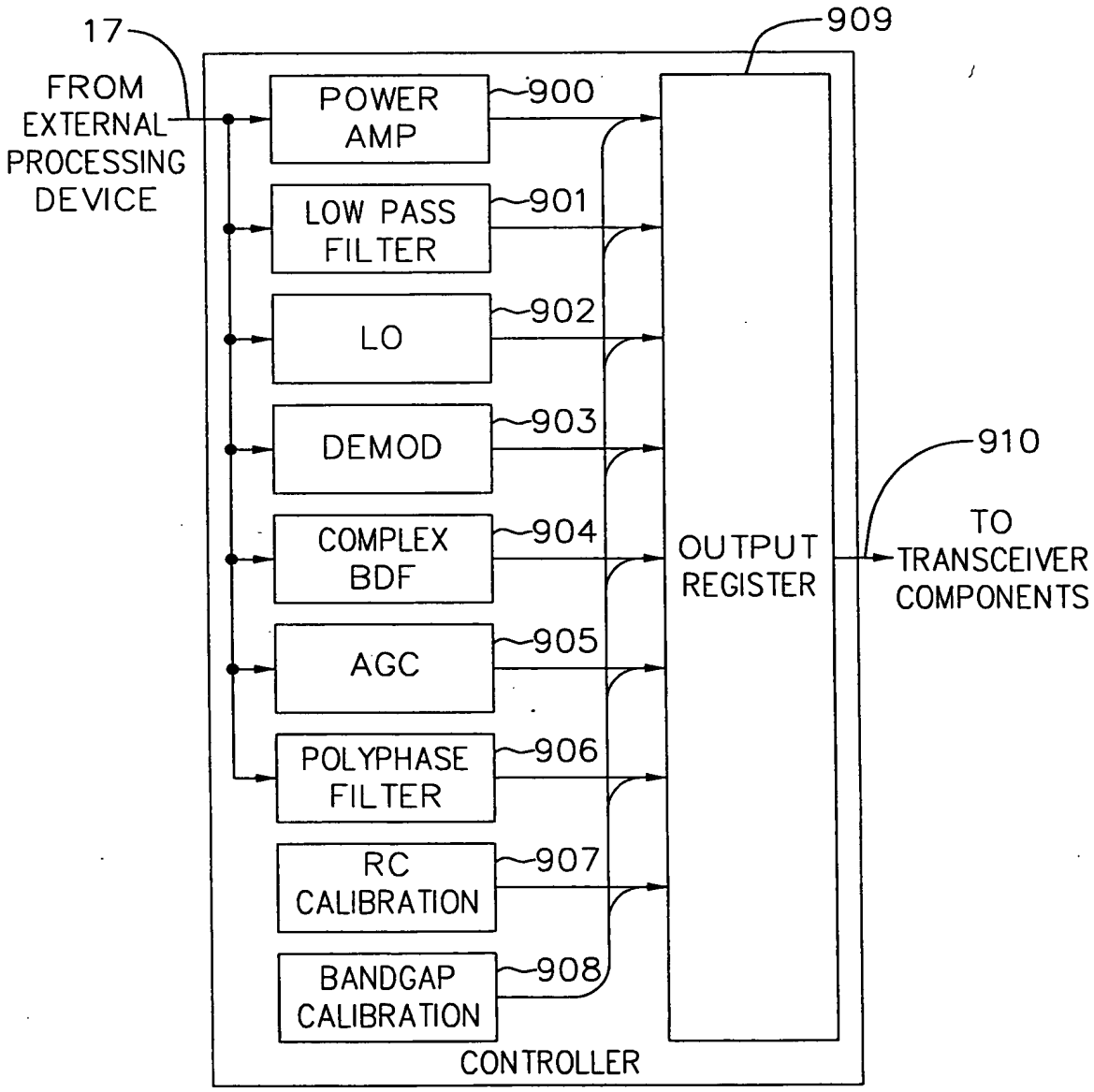


FIG.38



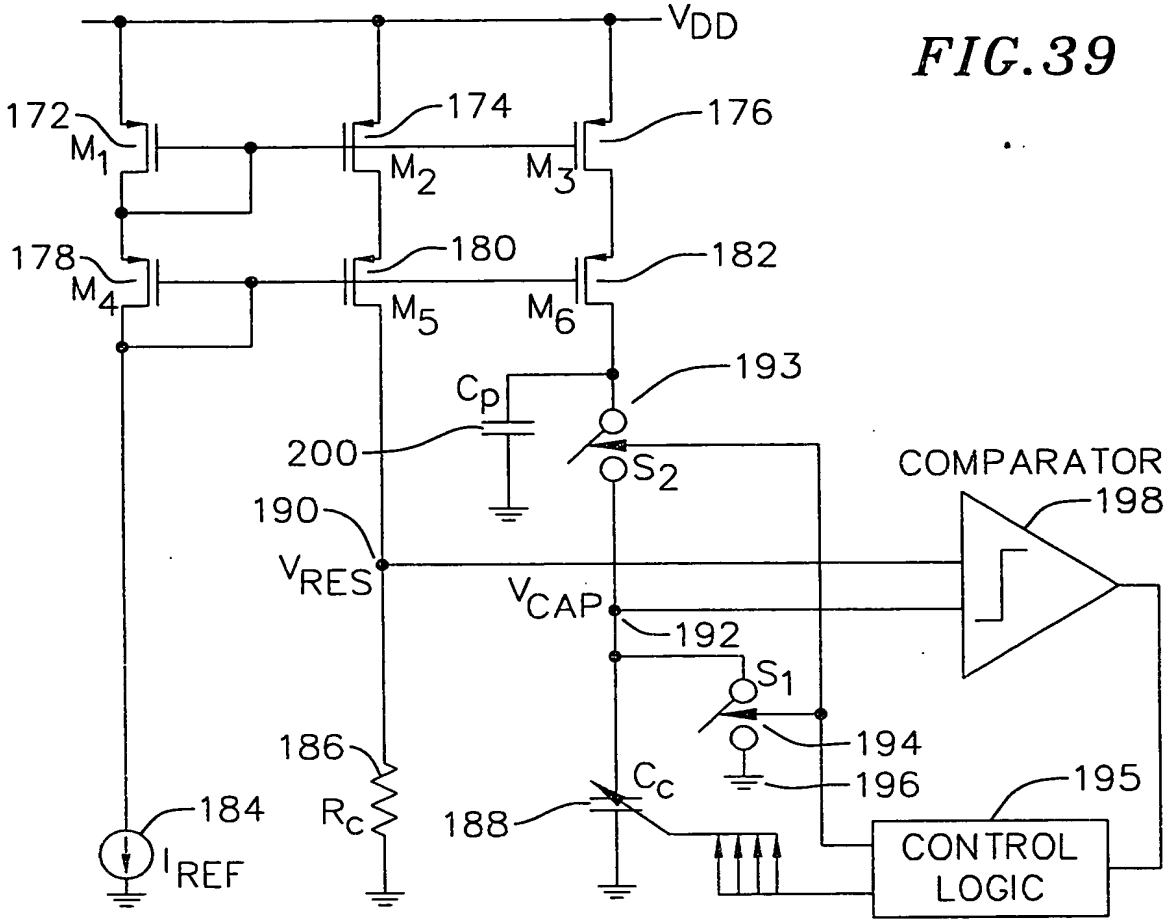


FIG.39

FIG.40

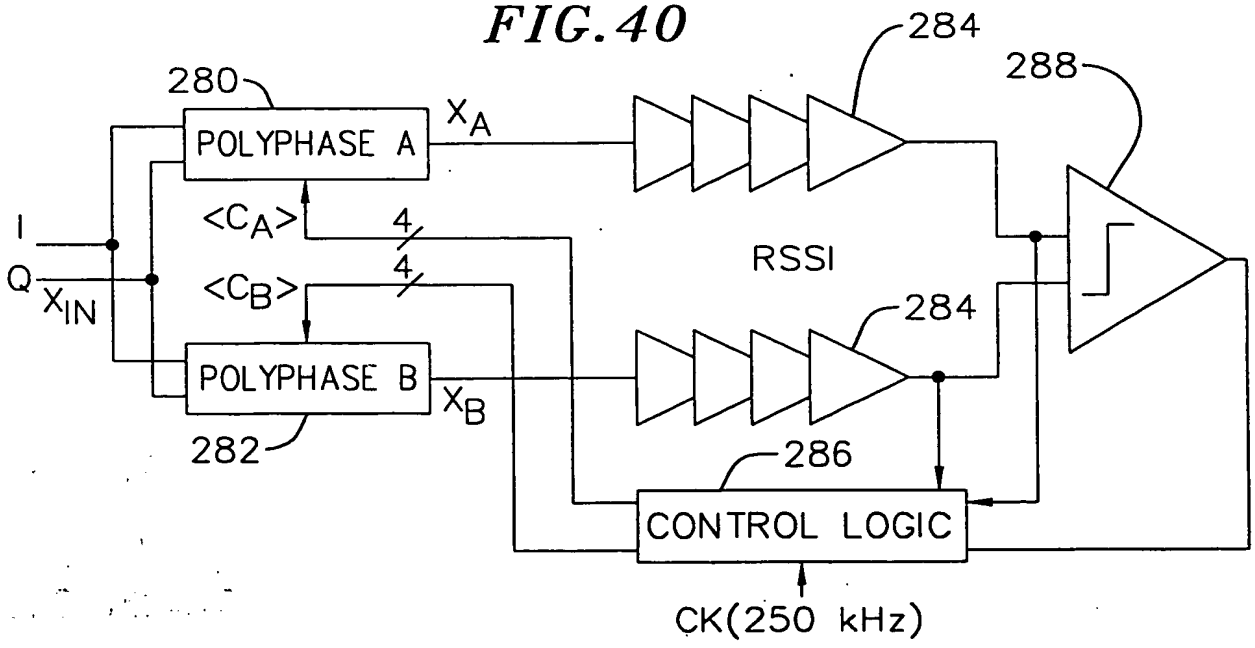


FIG. 41

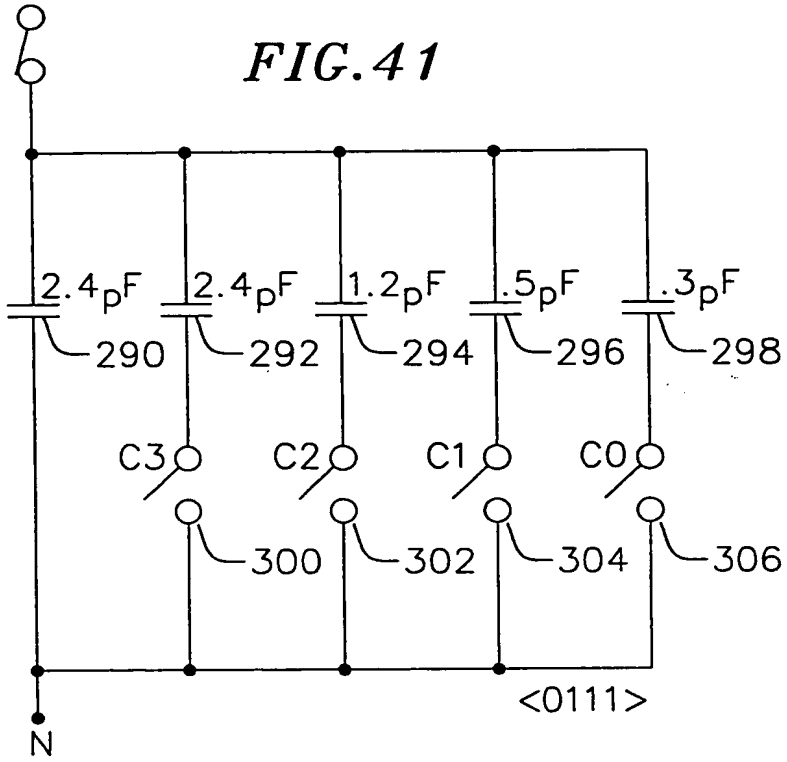


FIG. 42

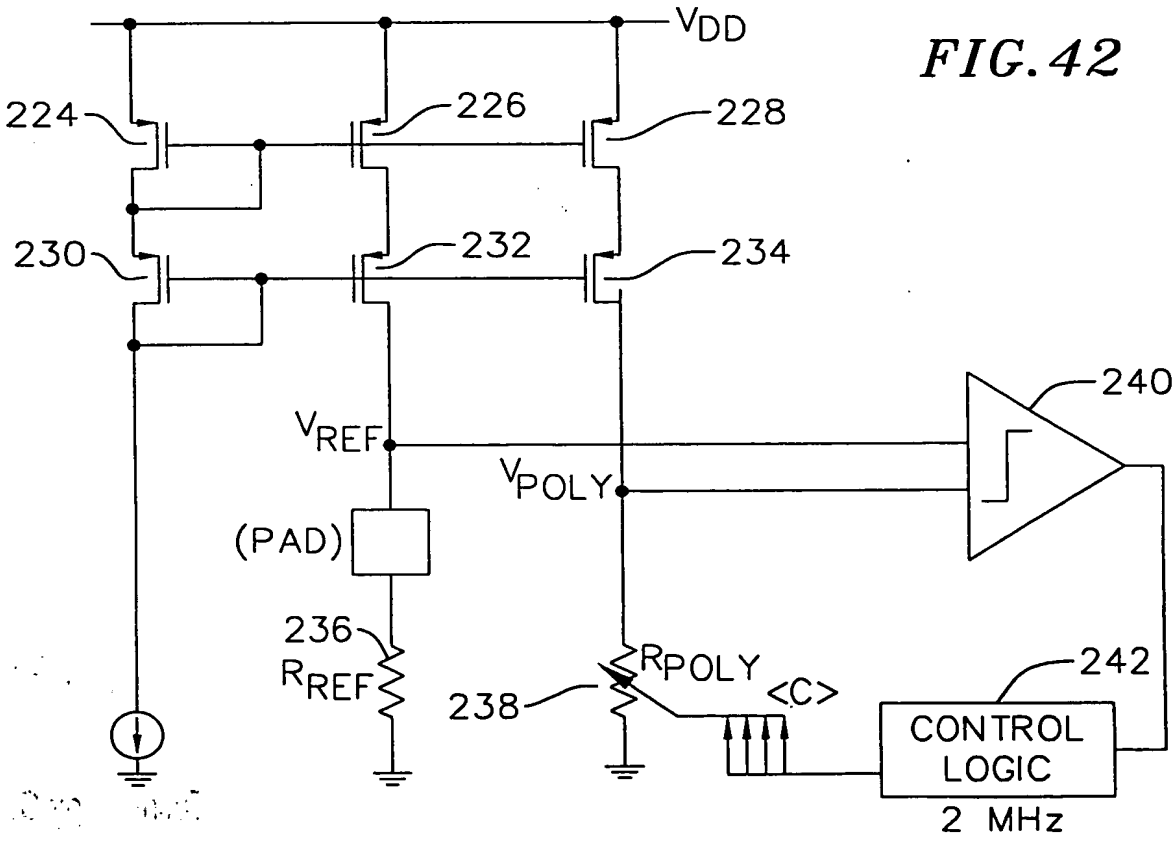


FIG. 43

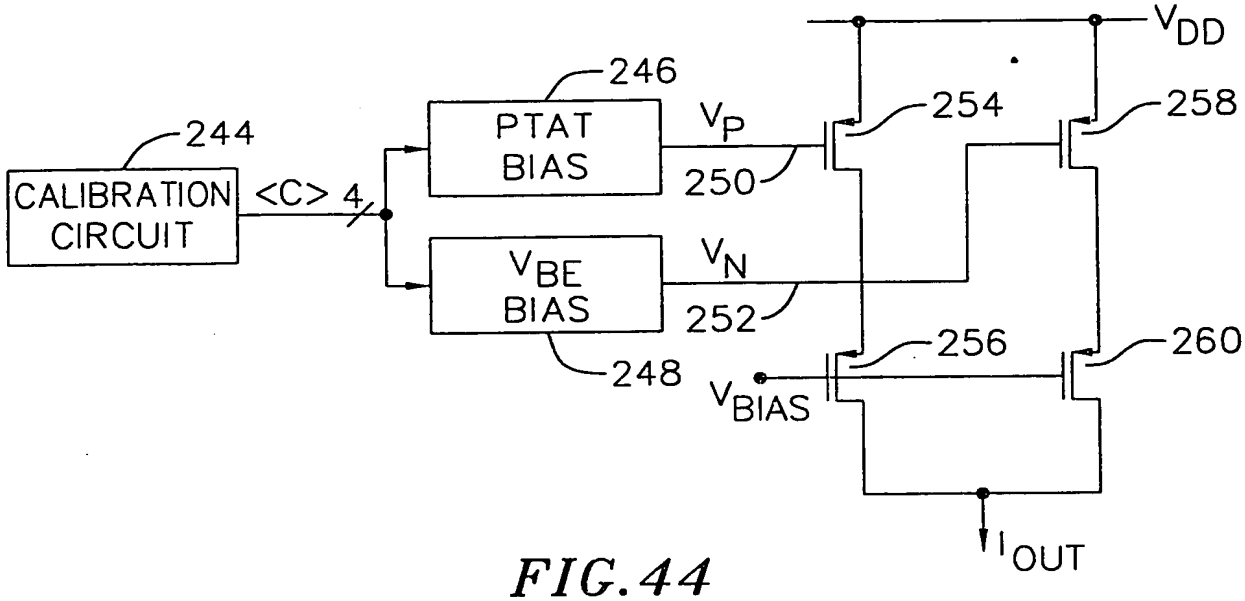


FIG. 44

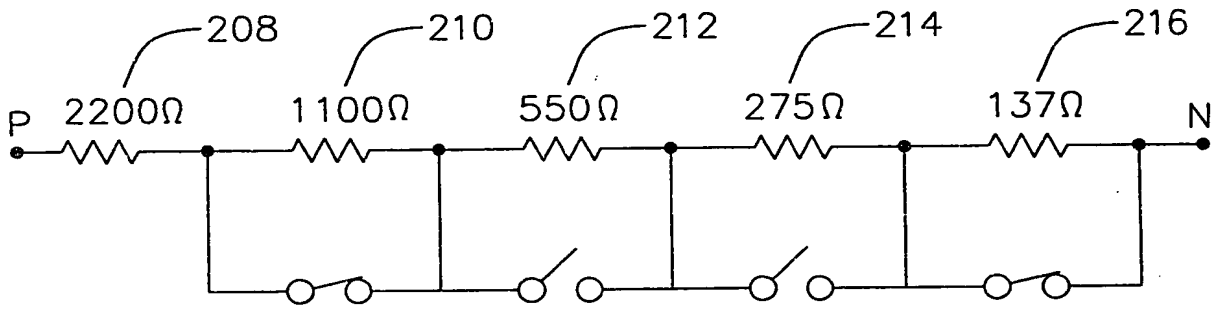


FIG. 45

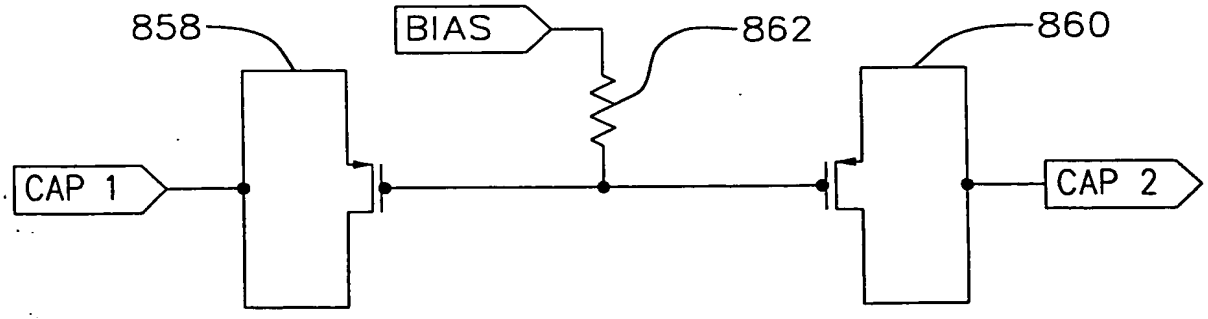


FIG.46

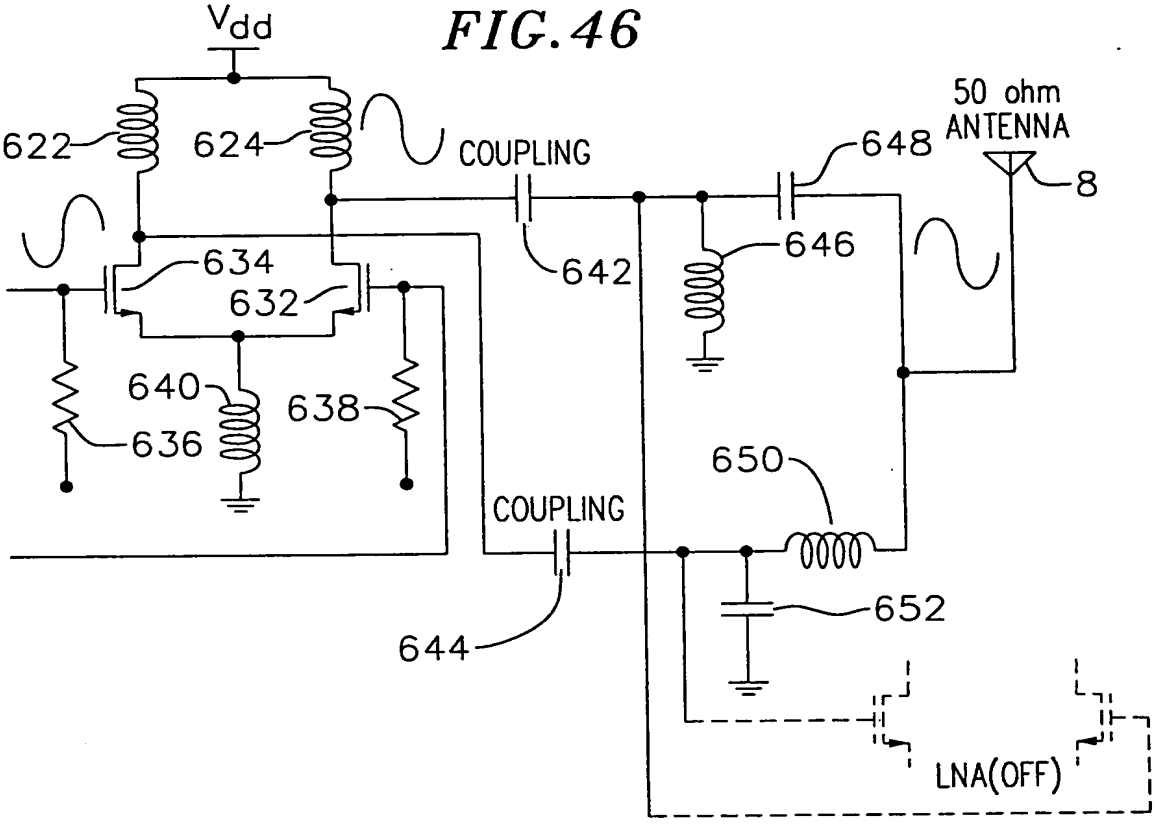
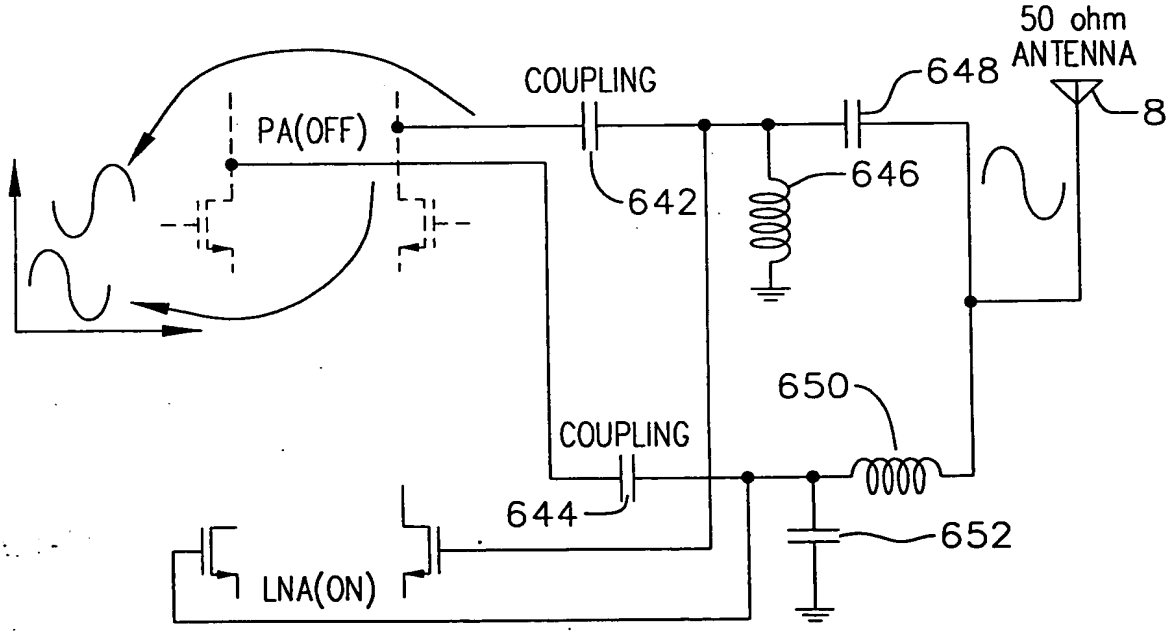


FIG.47



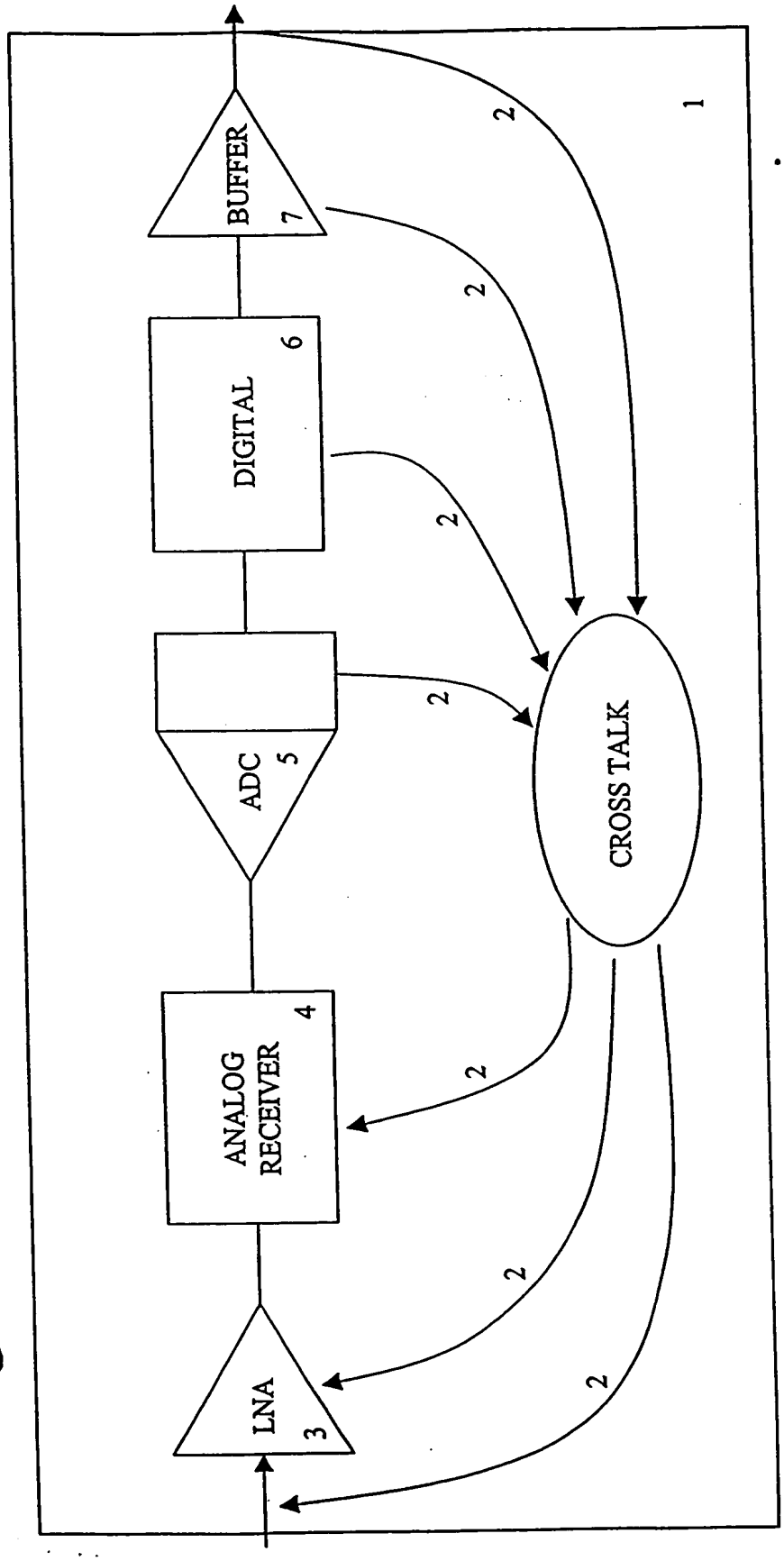


Fig. 48a

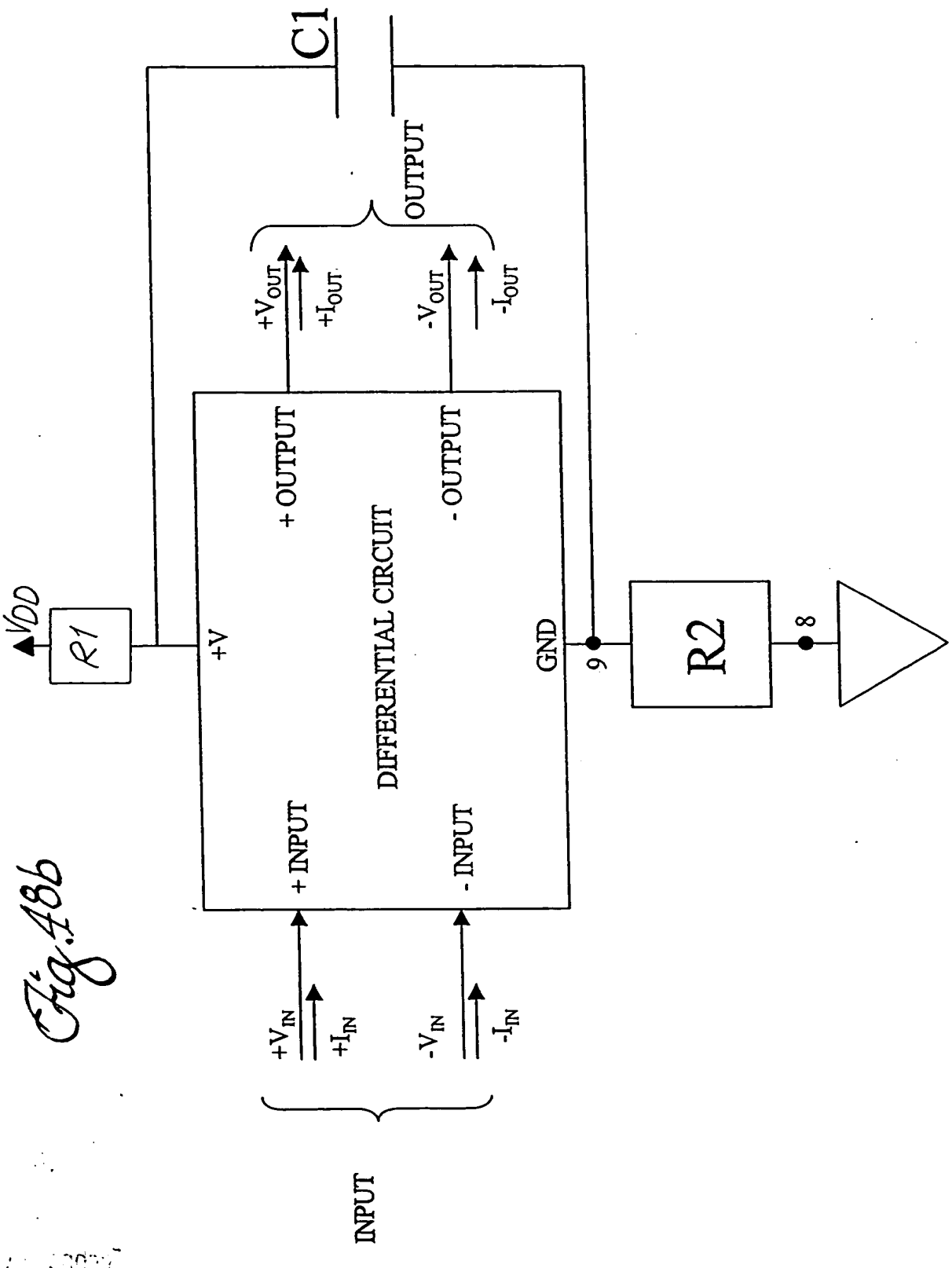


Fig.48b

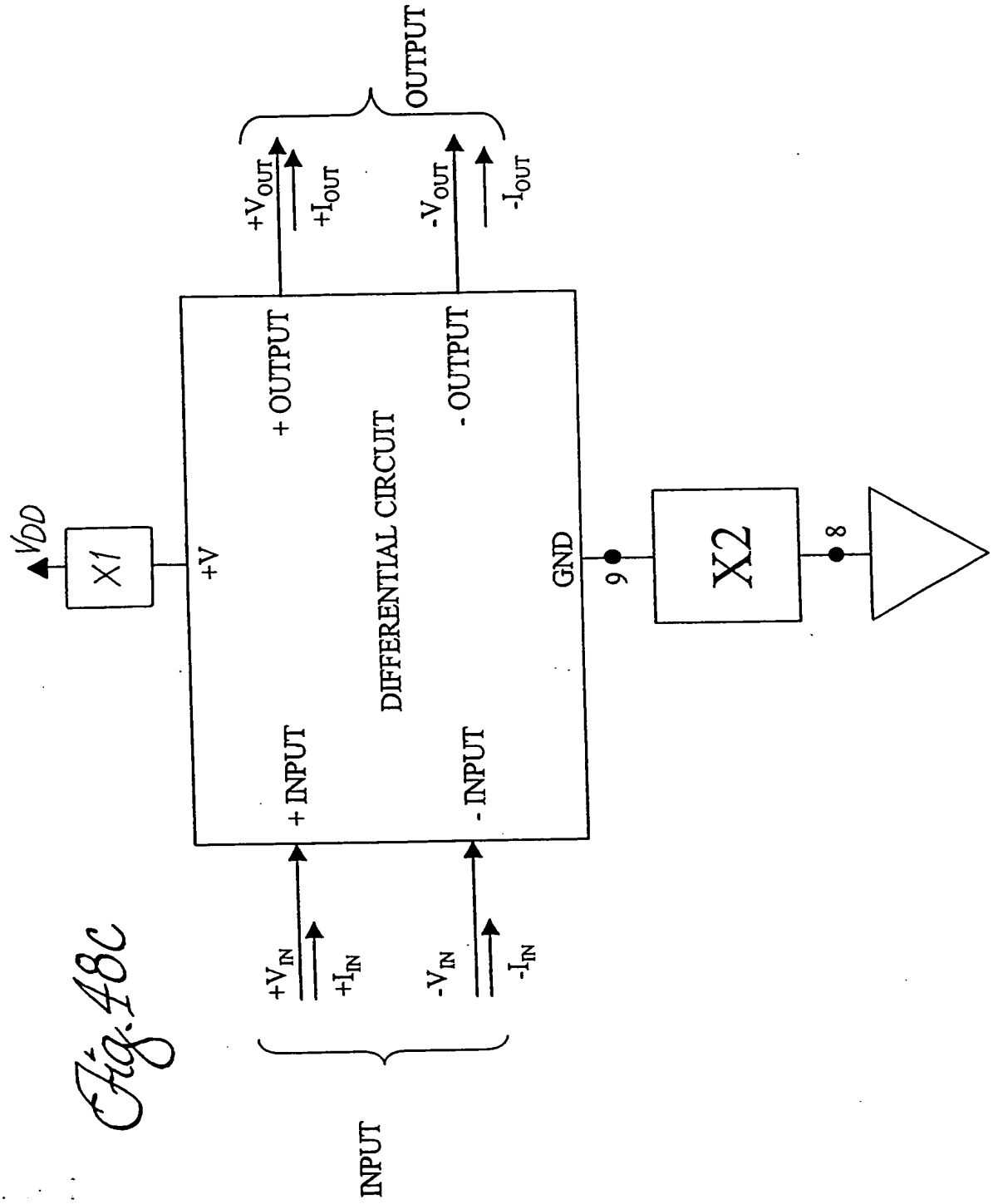


Fig. 48C

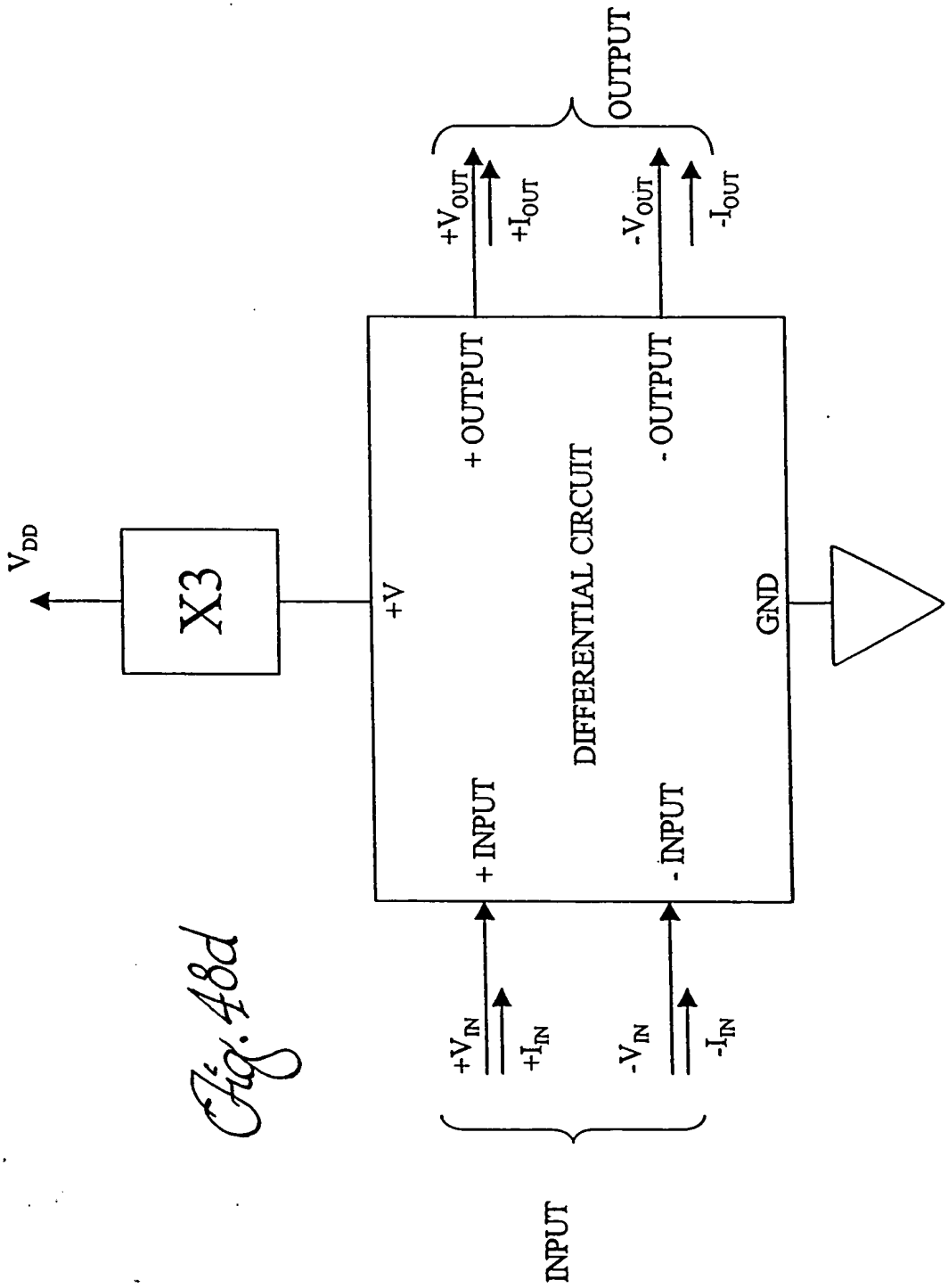


Fig. 48d

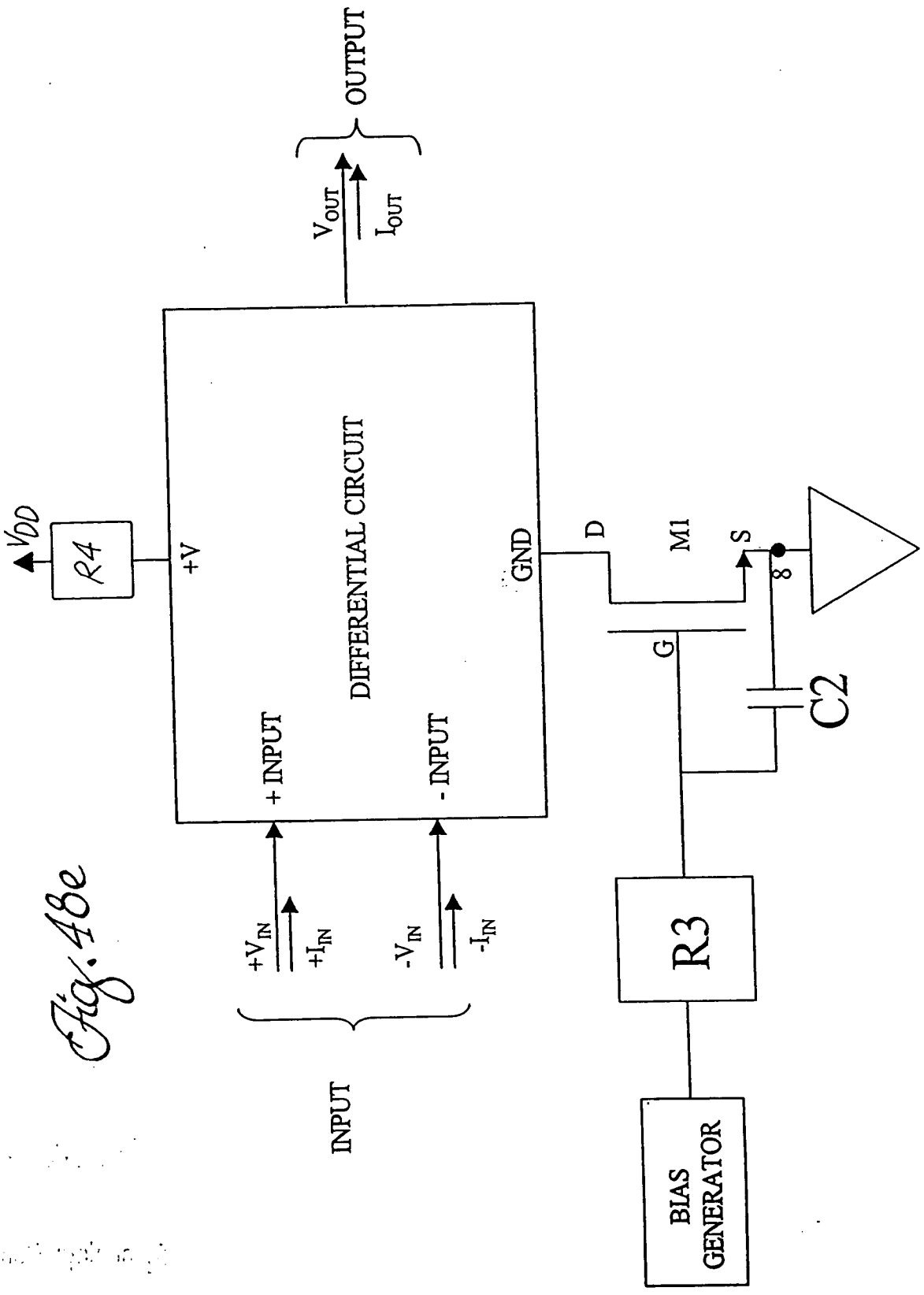


Fig. 18e

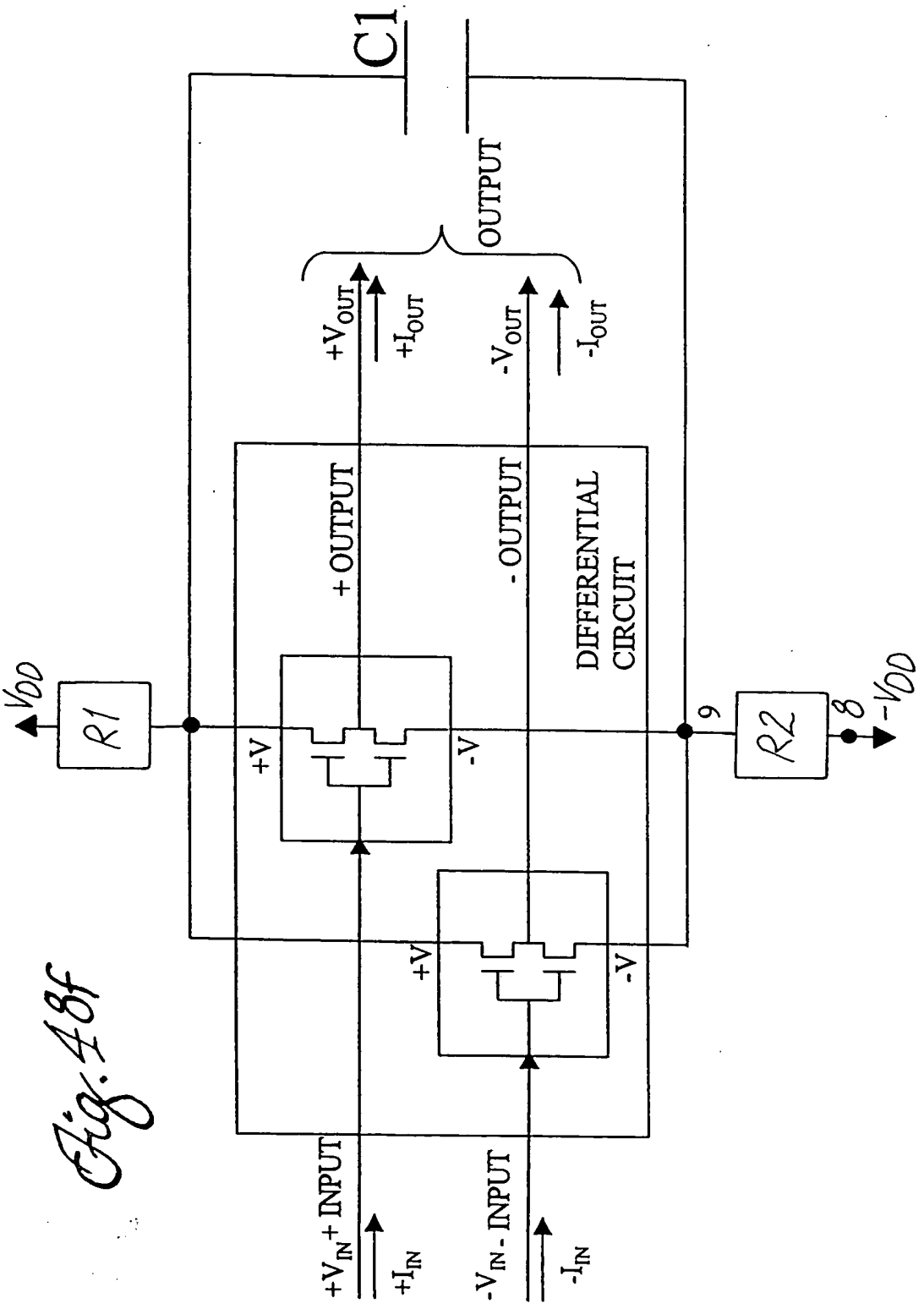


Fig. 48f